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AND ARTIFICIAL METHODS

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CAUSES AND TREATMENT OF STERILITY IN BOTH SEXES BY FECUNDATION ARTIFICIAL METHODS

Translated from the FRENCH of

With Notes by — Mr. J. Gérard, Paris

CHAS. EVERETT WARREN, M.D.
— BOSTON-MASS-U.S.A. —

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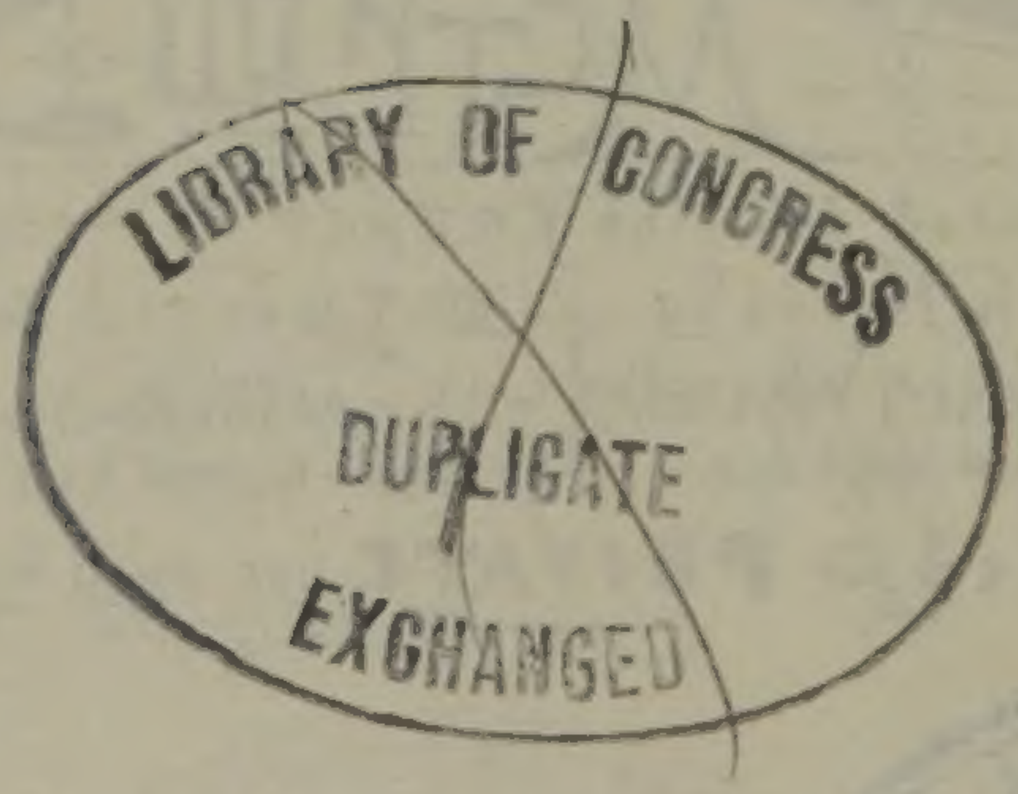
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LIGHT UPON A DARK SUBJECT.

IN undertaking the translation of Gerard's work I naturally hesitated at the audacity and, as it seemed, temerity of a literal rendition, in plain and undisguised English, of this, as it were, triple essence of French literature.

The manuscript translation, privately circulated amongst my medical friends, met with universal praise, and called forth no words of censure, as I had feared it might. Encouraged by this endorsement, and at their solicitation, I put the first part in print at my own expense as a test, intending to publish it seriatim, if I met with the favor of the profession at large.

I sent out but few press copies, which met with universal endorsement. My reviewers and subscribers voiced their sentiment in the words of the Buffalo

Medical Journal, of February, 1891: "We await with impatience the appearance of the whole work, which, judging by the specimen, will, no doubt, be a valuable addition to our medical literature."

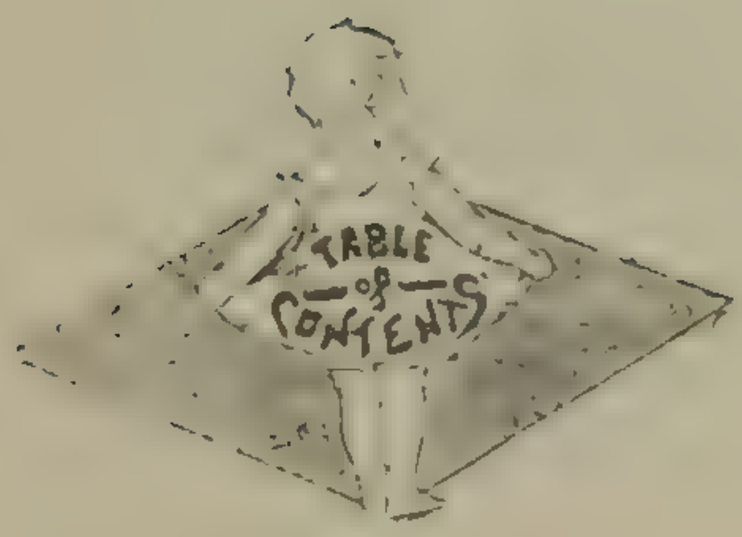
Encouraged by this favorable sentiment, I determined to publish the whole work at once, and at the same time reduced the price so as to bring it within the reach of all. The larger portion of the edition is already spoken for, and there are but a few copies left for immediate orders.

The work nominally relates to Sterility, but incidentally introduces, in an amusing colloquial manner, many facts relating to the Hygiene of the Sexual Organs, and the Relations of the Sexes.

In my translation I have retained the style and character of the original, and have re-touched the numerous cuts, so that none of the artistic finish, aptitude, or suggestiveness of the original has been lost, but rather increased.



The physician may peruse this curious book with profit to his fund of knowledge; and even if he is not interested in the special subject treated therein, he may gain points for use in general practice.



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Honi Soit Qui Mal y Pense.

AT a ball recently, after a sprightly waltz, a garter of blue and gold was seen lying conspicuously in the center of the floor. No one moved to pick it up, but each carelessly essayed to be blind to its presence. The maid finally removed this offensive article with a dust-pan and brush. So much for the Nineteenth Century.

In the Fourteenth Century they did things differently. The Countess of Salisbury, says tra-

dition, dropped her garter at a ball, and King Edward took it up and returned it to her, exclaiming, for the benefit of those who smiled at the act, "Honi soit qui mal y pense"—"Evil to him who evil thinks."

A spade is a spade whether we call it by its name or an "agricultural implement." By the latter term it means the same, but in the ambiguiiy of the false modesty which thus indirectly alludes to and evades a question, the meaning is often totally obscured in the foggy confusion of non-intelligibility, or the clew hopelessly lost in the web of menotony.

Every tub, says the homely

proverb, must stand on its own bottom; and every subject, to be clearly explained, must stand on bottom facts and be clothed in plain words. If you handle pitch, you will be defiled; and, contrawise, cats in gloves catch no mice. Pitch is a useful article in art, trade, and medicine; it is only relatively unclean to those too good to handle it, and it leaves no indelible stain. If you handle it, you will know its qualities, but if you stand off and poke it with a ten-foot pole, you can't tell whether it is pitch or putty.

Society, standing on its pedal extremities and elevated on the stilts of prudery, occasionally

pokes with its ten-foot pole of false modesty at a very delicate subject; and when the creature stirs, society retreats, and hides its blushes behind the screen of indifference and assumed unconsciousness of the existence of such an animal, whence it occasionally peeks, when it thinks no one is looking, to satisfy its very apparent prurient curiosity.

The subject of the sexual organs and functions is as closely concealed and wrapped in mysticism and darkness as the omnipresent skeleton in the closet, and yet, as every household has its skeleton in the closet, so has e v e r y person sexual organs, about which he or she should

know — what they are and how to control them. To keep them in a private closet, the key of which is lost or unfound, is to have an unknown and unseen tenant who is constantly creating a scare, and often of the most innocent character.

Ignorance of nature's laws often leads to dangerous perversions of her functions, disregard of her warnings, or negligence of her precautions to avoid disease or prevent its advance.

There is nothing in the human economy of which men and women are more in ignorance, and of which they should know most. Ignorance is not bliss in this case. It is the source of men-

tal unhappiness, bodily suffering, disease, crime, war, sin, and sorrow, without measure or end.

The ancients attributed much of the illness of women to hysteria, the term being derived from the word meaning the womb, this organ, in their estimation, being the very center of woman's existence. In this they were, perhaps, not sufficiently discriminating, and took too wide a view; yet the influence, directly and indirectly, of the sexual functions and sensual animus, to coin an expressive term, cannot be too thoroughly recognized.

Sexual starvation on the one hand and sexual intemperance on the other number their vic-

tims by the thousands; while the exigencies of civilization and society, false methods of living, harmful customs and costumes, add their quota to the sacrifice of health.

Ignorance of cause and effect is too often to blame for these moral and corporeal sins. There is so much good advice in Dr. Gerard's lately-published book, relating to such subjects, that I have translated it for that reason more than for its main title.

The physician can peruse the book with profit to his general fund of knowledge, and can gain points of use in general practice.

The pithiness and apt illustrations, by word and by picture,

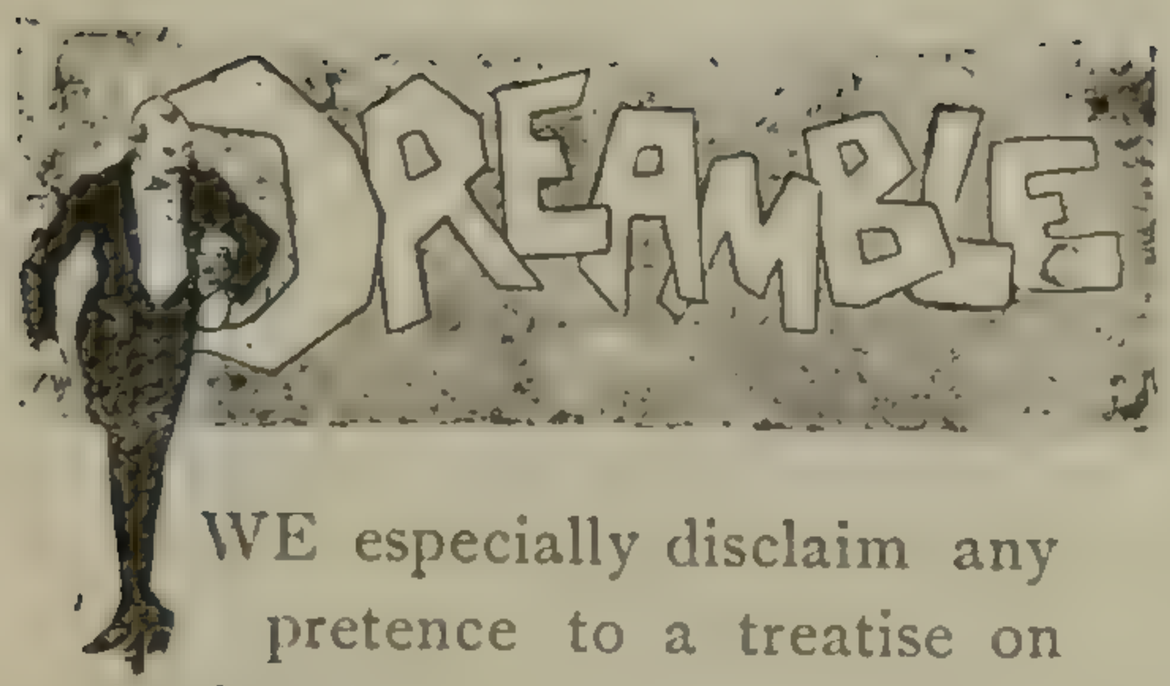
require no comment, as they speak for themselves.

In translating, certain difficulties have been encountered, and some ingenuity was necessary to make use of the same initials as in the original. By a happy accident it was possible to reproduce the title-page essentially unchanged, after slight alterations and retouching.

51 Union Park,

Charles Everett Warren, M.D.

Boston, Mass.



WE especially disclaim any pretence to a treatise on Embryology. Our purpose above all is to base our exposition on practical grounds; to be clear, simple and precise, in our discussion of the causes of sterilty.

We continue, as heretofore, the use of the colloquial style, maintaining the reputation already obtained; putting science within the mental reach of all, by the use of plain words and metaphors.

Our book is especially intended for those families in utter desolation as far as children are concerned. We shall tell them the cause of their barrenness, which is often simple in nature. We shall constantly refer to the numerous designs, necessary for demonstration, and so suggestive as an aid to the text of so delicate a subject.

Perhaps the suggestiveness of these fantastic designs may be censurable, but they were made with the purpose of clearly illustrating and impressing facts cited in the text; more than this, allegorical and diagrammatic figures shock the feelings much less than the brutal reality of purely

scientific and anatomically correct plates.

This is our only excuse.

All the statements in the book are scientifically correct, and all that we advance herein is but a synthesis of numerous facts gleaned from other works. Among the most noted of these, suffice it to mention such authorities as Pouchet, Coste, Balbiani, Rouget, Charles Robin, Matthias Duval, Sappey, Gerce, Rossi, Spallanzi, Volff, DeGraaf, Remak, Von Baer, Kolliker, Muller, Henle, Purkinge, Fol, Hertwig, and Raciborski, who have illustrated the science in such a manner that to-day the mysterious beginnings of life are

as well known to us as the phases of the egg in its development into the chicken.

These savants have had the patience to investigate the genesis of the male and female elements. From the time of their formation to the time of their fusion, they have watched every stage of embryonic life, not only in the lower animals, but throughout the whole scale of the

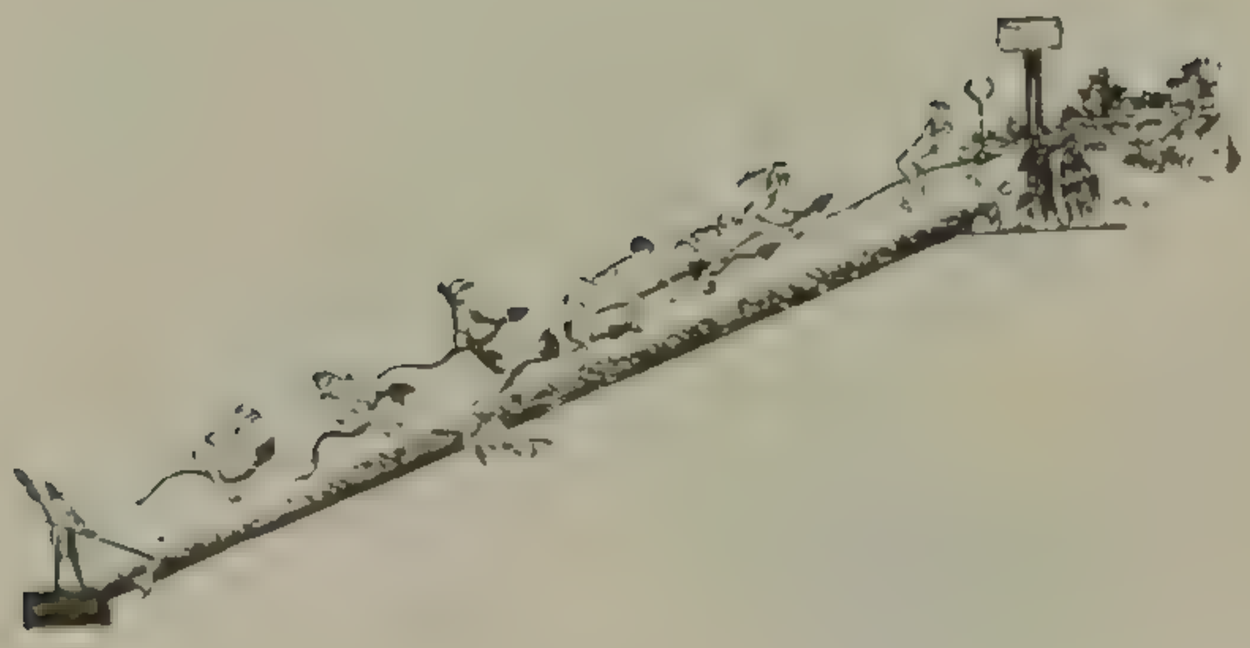


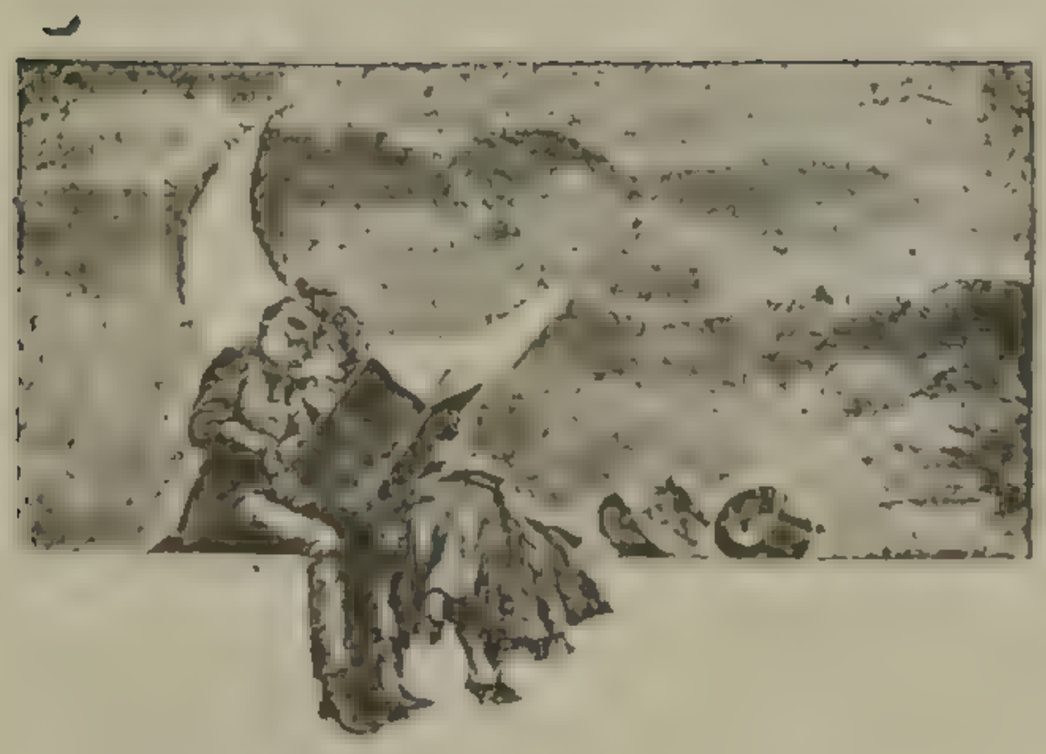
warm-blooded animals, up to and including woman. History, then, is what we are about to write, not a novel.

J. GERARD.

Part I.

LATENT STERILITY.





I.

General Laws of Fecundation.

LOVE, in the marital relations, is an element greatly appreciated by those of good taste, but is not indispensable for the creation of

children. Simple intercourse suf-



fices to accomplish this, whether the act be all on one side, and to the other a "bore," or a duty, a clause of a contract entered into by two conjoint partners.

From the purely medical standpoint an infant is simply the final result of the marriage of the cells.



Each sex furnishes its counterpart cell, and never furnishes two, except in the case of twins. For the sake

of clearness these exceptional cases are omitted and the matter is treated in its simplest and most common form.

The cell furnished by woman is an ovule, or egg, of very brief life if it is not fecundated. This small egg remains almost passive, having no means of locomotion of its own, its passage from one spot to another being brought about by external factors. The fingers of the Fallopian tube guide the ovule to the orifice of the canal, and when it is engaged therein the ovule progresses farther only by the vibration of the cilia which line the tube. These cilia vibrate from without inwards, so that

the egg, being once within the canal, must perforce pass through it and into the uterine cavity. It can never retrace the way. It may, however, be arrested in transit, or it may find the calibre of the tube too small to allow it to pass; then tubular pregnancy follows.



On the other hand, man furnishes his special cell, not an ovule, but its equivalent, a spermatozoid; and although nature furnishes an innumerable quantity of these cells, she chooses but one, making a judicious selection of the best, the one having the greatest vigor and health



being the one of all fitted for the purpose of perpetuating the species in the best conditions. Out of twelve hundred thousand she has one, the elect par excellence. Horticulturists, as every one knows, choose the best plants for seed if they would have good products. Stock-raisers do the same. They select the strongest and most healthful animals, and the result is good and fair to look upon. No doubt troubles their mind as

it would if they should sow poor seed, to rot in the soil, or should serve old, infirm, and sickly animals, who could produce only poor offspring, or none at all.



Nature with wisdom defies our wilfulness, for while we often make marriages of convenience, or for the dowry, she offsets our egoism, in a measure, by selecting that which is best in us, a selection of the fittest. She institutes a steeple-chase, as it were, the most vigorous and en-

ergetic spermatozoid alone being crowned as happy victor, and rewarded with the privilege of entering the ovule and endowing it with life.

This is a novel race-course, this one of nature. The ovule has no power of movement in itself, — it is simply carried along to its destination by the vibratory movement of the cilia; but the spermatozoid, under the microscope, shows that it is a very energetic little thing, flashing through space in an instant, propelled by its tail, which is endowed with great vigor; it doubles and advances like a fish in the water, and, like the fish, it progresses more easily with the

current than against it. But it meets obstacles which we represent diagramatically.

The sketch represents an inclined plane showing the difficulty to be overcome by the spermatozoids which have to ride against the current of the cilia. Even near the starting-point some faint-hearted ones have lost interest in the struggle and died in their tracks. Further on several are whipping up their courage and exerting themselves as if they were climbing the greased pole for the soap at its top, while the most vigorous are nearing the finish. One alone arrives at the spot, enters the egg, and thus closes it to all oth-

ers, just as the female of all ani-
mals refuses the approaches of
the male after fecundation.

II.

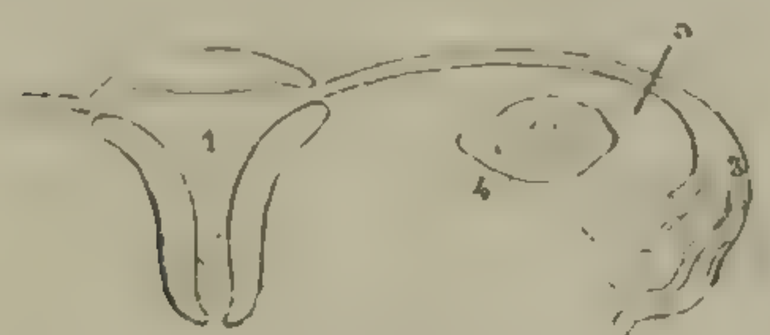
Role of the Ovule.

EACH month, at the menstrual period, woman lays a little egg, the ovule, which is detached from the ovary. This ovule, scarcely as big as the head of a pin, is contained in a pellucid membrane very easily altered in character, either by disintegration or by thickening. In either case, whether the casing is broken or thickened, the egg of course becomes sterile. The egg contains in its midst a small white



spot,— the germinative spot,— called by embryologists the female pronucleus. This spot occurs in every ovule, whether the woman is married or single.

If this egg is not fertilized at its exit from the ovary, the chances are that it never will be,



and if it passes out of the Fallopian tube without meeting a spermatozoid, the chance becomes a certainty. Such a little cell, all alone by itself, with nothing to live on, undergoes rapid alteration.

The figure will show the short space of time propitious to the act. The curved dotted line is precisely the course in which the egg can be fertilized. As soon as it passes the line of the external third, the egg ceases to be a good one, and is rejected or liquified, no trace of it being left.

How essential, then, that intercourse should be at the opportune moment, when we consider in what a brief time this frail existence ends, for of all the ephemerids, the human ovule, if not impregnated, is the shortest lived. The higher the animal in the scale, the less vitality in the ovule, the smaller its size, and the more delicate its existence.

The ovule of the frog is 14–15 times as large as that of a woman, and its vital resistance is proportionately great; its life, after its exit from the ovary, is in favor of the frog as 1 : 100.



III.

The Spermatozoid.



NOTHING makes so deep an impression upon the mind as a figure of speech. If we sow peas, we do not expect beans.

This is the case in the human seed-sowing. The infant is always compounded of the same elements as the seed, but one of the sowers may exercise greater influence over the product,— sometimes in physical strength, sometimes in mental power,—

so that a boy may have the figure of his father and the virtues or failings of his mother, while the daughter may inherit the moral character of her father and physically resemble her mother. The spermatozoid is an exact minature of the one who supplies it at the moment of its emission. This moment, then, plays no unimportant part in the future of the infant. The father should choose the right time for intercourse. He should not be over-fatigued, nor excited at that supreme moment, if he would not create his image at that moment. In another chapter we shall speak of those special conditions which the husband ought to ob-

serve that he may create a child having the maximum qualities of father and mother.



The husband is the responsible party in the vitality of the child. If the woman takes a whole month to elaborate and perfect the ovule and so bring it to maturity, why should not the husband take a similar length of time to perfect the seed? An anatomical description of the genesis of the spermatozoid is unnecessary at

this place. It is sufficient to know that the gland which secretes it is an organ precisely similar to the ovary of woman, where it passes through a like elaboration as the ovule, the development of the spermatozoid resulting from the successive changes in a special cell, which finally becomes an animalcule, as it were, endowed with vigor and resistance as great as the genital rest has been complete.

We said elsewhere that horticulturists never took green apple-seed when they wished for fine apple-trees, and the analogy holds in man.

The most indifferent man, in

the smallest acts of his life, takes every precaution, and secures every possible guarantee that he may not do a useless or incomplete thing, even if it is no more important than adding up his laundry-list; but when he attempts to perpetuate the species, to make another like himself, he throws prudence to the winds and goes to the devil, to make a man as he would light a cigar.



Man is a creature of habit, and yet when a habit is once formed, he pretends and even feels that it is necessity that impels him to satisfy a natural appetite or desire.



He travels in a fatal circle which leads to the tomb by the shortest cut, contracting phthisis and similar wasting diseases, which successfully attack only those constitutionally weakened and exhausted, and if, per-

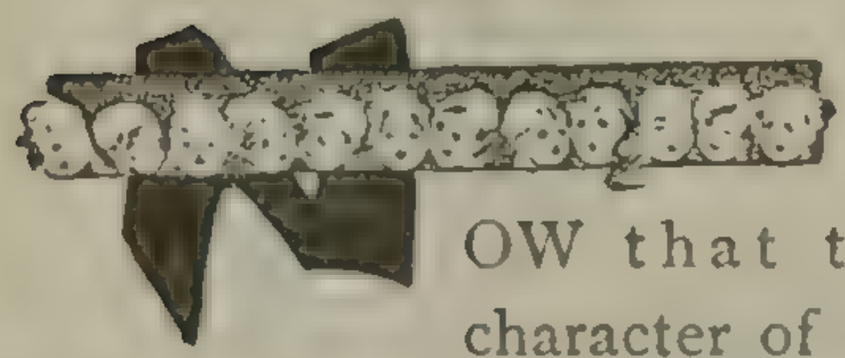
chance, this man perpetuates himself in such a sad condition, he transmits to his progeny a fatal blemish which disappears only with the race.

If a man wants children, let him abstain as much as possible; let him not sow his seed with the wind, but let him economize and save his vigor for his great duty. If, on the other hand, he sacrifices to Venus, that is his own lookout; he wrongs no one so much as himself, and every one is at liberty to shorten his life, if he so desires; at least we cannot prevent his so doing.



IV.

The Meeting of the Cells, Male and Female.



NOW that the character of the ovule and the spermatozoid is understood, let us see what happens at the meeting of the cells. What is the mystery of incarnation which gives birth to the child? Three cases occur.

1. Intercourse, with its attendant emotion, causes the rup-

ture of the ovisiac which holds the ovule within the ovary. It "shells it out."

2. The ovule is already free, but the husband is still absent.



3. The husband fulfils his duties, but the egg is still in its envelope.

The question arises, what will happen in each case?

First supposition. This most frequently occurs: Excited by the voluptuous embrace, the ovule comes from the ovary, like a chestnut from its burr, and is seized by the fringes of the tube, which, by movements of reprehension, lead it towards the canal, to meet the spermatozoid,



which has not yet arrived, since it takes two hours to traverse the

course of 16–17 centimetres from the neck of the uterus to the external portion of the tube. Now the deed is done.

Second supposition. The ovule is already free when the husband is absent. Nature does not hurry matters now. The fingers of the tube move more slowly, the ovule travels softly, and, as it were, with regret. It waits a day or two for that which shall revive its drooping spirit and give it life. But often it waits in vain, and perishes in its "tracks," disappearing from the scene, leaving no trace of its existence. If, on the contrary, it feels the arrival of its master, it is reanimated, it takes hope

again, and hastens to the meeting. But, alas ! sometimes it is too late; its envelope has been worn out in the waiting, and its contents lost. Adieu to life and its smiling dreams.

Third supposition. The husband fulfils his duty, but the



ovule remains in its envelope. The spermatozoids have finished

their course and have gone as far as the ovary, to find out what the trouble is. Here they remain, caught in the folds of the tube. Some of them have fallen by the way, but the most vigorous have arrived, and now rest to recover from their fatigue. Here they are in a life-giving medium, warm and sheltered from death, provided the liquid in which they find themselves is propitious; but, on the other hand, they may die and disappear.

Why they die we shall see later, but to tell the reason now would be to anticipate.

It is an incontestible fact that the spermatozoid can live in the deep genital regions of the

woman, as well as in the seminal vesicles of the man. Yet there are limits to this longevity. It would not be wise to endow them with too long life, for then abuse would follow. Kids are known to be in rut in July, and to be fecundated four months after, but this is a freak of nature. The ovule has slept for four months before beginning to develop.

To infer that a woman, who has seen her husband the day of his departure, could bear a child to him a year after, would be too accommodating to the intervening —— circumstances. No! the spermatozoid may rest two or three days in the genital

passages of the woman, and fertilize the egg on its way out, but this is all the extension of time that we can reasonably grant.



V.

Marriage of the Cells.



QUESTIONS of introduction being settled, and the two cells being in presence of each other, let us discuss their union and fusion into one element, destined to perpetuate each by normal developments.

The two elements are true coquettes. The male is like a bantam rooster skipping about the pullets. He makes the tour of the ovule, bowing and balancing. The ovule, on its side, throws out little conical projections toward the spermatozoid, as if beckoning and inviting it to enter. Still, although the envelope is exceedingly thin, it seems too thick to be pierced by the beak of the spermatozoid, but this prolongation of the ovule tends to thin out the en-



velope, just as one reduces the thickness of a toy balloon by pressing it with the finger, and then finds it easier to puncture it with a needle. At last the spermatozoid finds the weak spot and enters. At this instant the little conical prolongation disappears, catching the spermatozoid by the head, and cutting off the tail, leaving it "out of doors."



In spite of this decapitation, the victory is won. The tail disappears, as it is now useless, the spermatozoid being in no further need of locomotor or-

gans, since it has reached its final destination.

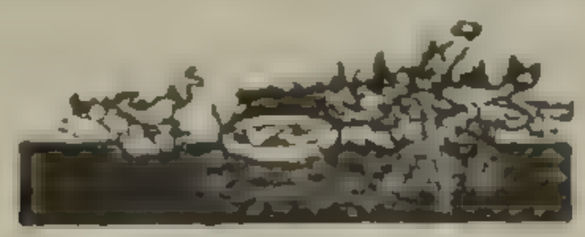
We have said that in the centre of the ovule there was a small white spot, the pronucleus. As soon as the head has entered the ovule, and has lost its tail, a sort of nimbus or glory is seen radiating from it,—a star, as it were, lighting up the dark portion of the ovule like true rays of light. It is like a ray of the sun, coming to vivify that which heretofore was only inert matter.



This luminous star, the male pronucleus, is separated from the

female nucleus, which is at the centre of the ovule, by the length of the radius, it being at the pole.

The female does not stir, but the male approaches her and soon is in contact. The female has meanwhile become shrunk away into a curved form, receiving the male. This depression increases, and the two elements, a moment ago separate and distinct, fuse into one. Soon the radiation from the pronucleus extends throughout the whole egg, and forms the first lineaments of the new being, — its life is lined out as in a sketch.



VI.

The Ovule before Fecundation.

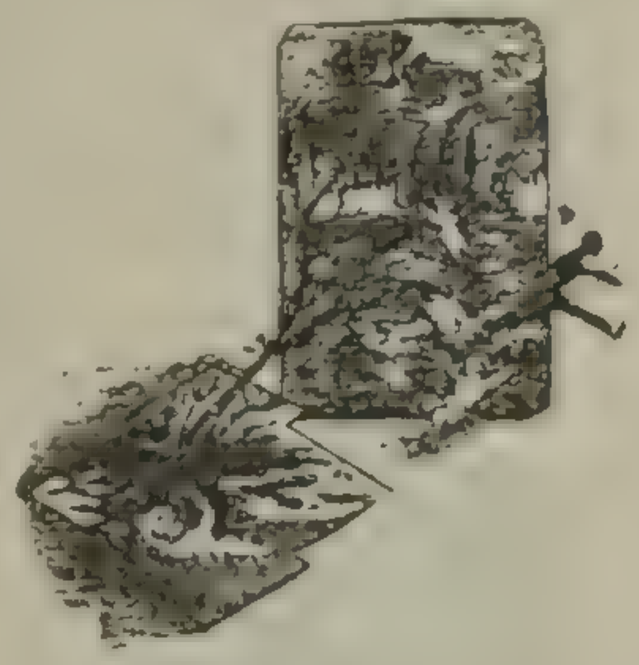


On account of its small size—the ovule measures only the tenth of a millimetre—it is easily affected by and subject to many accidents. The genital passions are such, that it is as if a storm swept through the organs, and nature takes every precaution to prevent the destruction of the

ovule by this cyclone of nervous erethrism.

The development of each ovule requires twenty-eight days, whether the woman is married or not, but this general rule has many exceptions.

The plum-tree which ripens its fruit in August, may be stripped in July by the wind, or by some little fool who



shakes its branches. The fruit is gone, but the tree is not to blame. What could it do? The branches wither and it produces

nothing; it lives, but it is barren.

The analogy needs no elaboration. Here is another figure: The ovule requires twenty-eight days to mature, but if its expulsion is hastened by intermenstrual excitants and stimulants, it is like unripe fruit, green, without bouquet or vigor — cheap at any price. Irregular menstruation is the result, and, secondarily, sterility supervenes.



The pullet who lays eggs before her time does not lay them long, and does lay them clear, without a yolk.

Intercourse,

therefore, before the maturity of the ovule, is not only barren of results, but leads to the premature ripening of the ovule, which then falls, useless, into the uterus when the husband is not present.

Ardent embraces often break the envelope of the ovule, and it is scattered throughout the canal where it ought to be fertilized. It is, like the hen's egg,soft-shelled;



it is so delicate, so fragile,that it breaks in the laying. We give the hens lime, and this indicates the remedy for woman—Phosphate of lime.

On the other hand, the envelope may be too thick and the husband's forces too weak to penetrate it, for the spermatozoid is the exact image of the man who produces it, and the fault often lies with him. His vigor is below par or has been squandered, or perhaps his only money is good wishes. Woman must then reduce the system by alkaline treatment, and by diet, when, perhaps, the door will open to the timid and gentle knock.

These different causes of sterility might be called micro-organic, on account of the microscopic character of the elements entering into them, but they are

not the only ones that escape ordinary examination. Unconscious antipathies, natural repulsion of the elements, varying electrical tension, and magnetic incompatibilities, are beyond research.

One more cause remains — ovo-tubular paralysis. The egg may remain within the ovary, as it were, asleep, or if it is expelled, it is changed in character. Then the fingers of the Fallopian tube may not be wide awake, and so do not seize the ovule when it escapes, but let it fall into the peritoneal cavity. At other times these fingers are cramped, or work imperfectly; they are useless, as if stiffened by neuralgia

or rheumatism. There are as many methods of treatment as there are causes.

Functional inactivity may extend into the tube itself, the cilia, which should escort the ovule to the uterus, remaining motionless. So, having no locomotor organs of its own, the egg, whether impregnated or not, perishes, being out of its element and crowded for room, while it is still in its first phases.



VII.

The Ovule after Fecundation.



IN the development, certain difficulties are met. The spermatozoid has penetrated the ovule and lost its tail, but the body is still entire; microscopic in size, it is true, but still more than a geometric point, which has no breadth, length, or thickness. It is a little man who has, as it were, brought despatches to

head-quarters, and has won a glorious victory over his comrades, and has received — promotion.

Rather, it is like a jockey who has won the race, but broken a leg. Can the spermatozoid thus mutilated do its duties? Is it the exact equivalent of the cell which it has entered, for, as in chemistry, equivalents do exist? You cannot combine oxygen and carbon, two atoms of one and one of the other; nor can you combine vital atoms, except in their predestined way.



Granted that the spermatozoid is within the ovule, will a fusion of the two pronucleii occur? Is there a sufficient affinity between the two cells for them to become one, after they have thus come from afar and have met face to face? The husband may be near the pole of life, while the wife is in the meridian; can two cells, six months the antipodes of each other, give and reciprocate love, or will the one or the other default at the last moment?

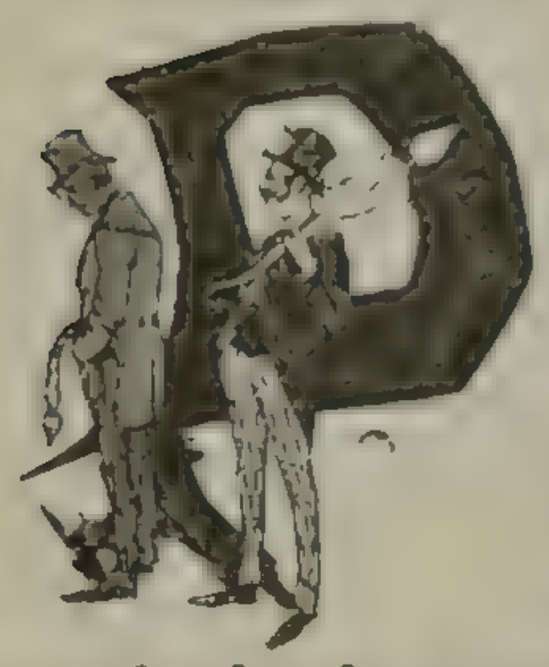
Difference of race, of physique, and of morals must all be accounted for in the grand result. Cat and dog may live in the same house, may be very

polite and civil, the one to the other, and yet they never think of attempting to perpetuate their good relations. Even should any result follow, it would be a mere hybrid. So, affinity and harmony may apparently exist in some households, when facts prove it is the cat and the dog on a larger scale.



VIII.

Concerning the Spermatozoid.



ON'T imagine that the woman is the only one at fault in sterility. Some men are absolutely paupers, as far as semen is concerned. Such men, though, are invalids, and will be taken care of in their appropriate place. We here wish to consider those who, apparently,

have all the desirable qualities; those, in a word, who have proved themselves competent as to visible quantity and quality, but fail in the clinical test, at the bedside of the wife.

It is one thing to be honored with the title of husband, and quite another to be a father.

Sometimes semen, apparently all right under the microscope, never brings paternity elsewhere. The woman may become divorced, and later bear children. The spermatozoid was, beyond a doubt, in the wrong.

The same difference may exist as there is in a draught-horse and a race-horse — the one travels slowly, and stops at the

first obstacle, the other goes on the run, and leaps all barriers; both move, in their way. Under the microscope we see similar characters in spermatozoids; here is one with a short, thick-set neck, fat body, thick tail, and heavy gait; there is one clean-cut, with slender form, fine head, long tail, and quick gait, leaping and prancing and always on the move. The road, too, has its difficulties, analogous to the uterine ways. Here are long stretches of level plain, where a few easy rises occur; here the horse may breathe hard and stumble, where the road becomes rougher; here the road leads over an abrupt precipice, steep

mountains, or through narrow defiles; but the agile horse and the skilful rider surmount all obstacles. Such is the road, in certain cases, upon which man enters, and over which he sends out his couriers.

So we see that there may be a cause of sterility whose logical treatment is by divorce; but such counsel is a delicate matter, and few physicians have the moral courage to give such advice, or to shoulder the responsibility of the consequences.

The age of the spermatozoid, for it has age, is an important point in the line of success. This age may be relative or absolute, the latter being the actual age

of the man. Generally, this has no influence upon the spermatozoid between the age of twenty and fifty, the man then being in all his vigor, and the spermatozoid being the exact image of the man, having all the vigor necessary to fulfil its end.

The relative age is different. On the one hand, a man may be thirty, and yet turning sixty. It is a matter of energy, of consti-



tution, or abuse. The spermatozoid always faithfully reproduces

the age of its proprietor. It walks on the same legs and at the same pace.

Still another age is of importance, — the microscopic age. Woman takes twenty-eight days to develop and perfect the ovule. Man has the advantage here, for he has an enormous store of spermatozoids. Woman has but one ovule at a time, while man does not need twenty-eight days to reproduce the spermatozoid that he wastes when he fires his powder at the sparrows. Still, it is prudent that he should abstain from intercourse at least eight days, when he is disposed to become a father, and then, out of the supply thus economized, there

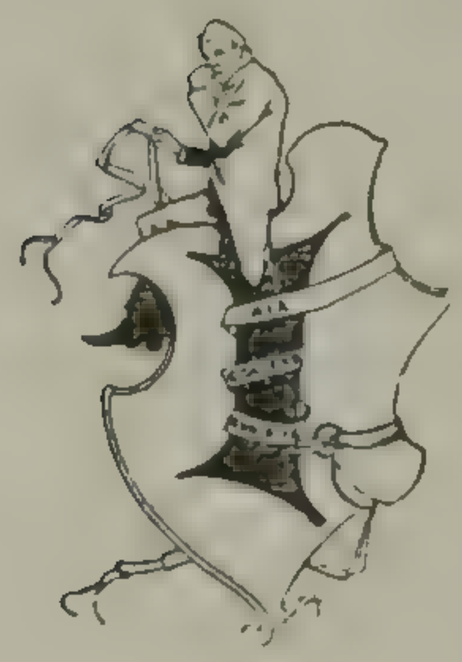
may be some new comer who will be the chosen one, rather than some old devotee of Venus, a candidate for the palm.

Here is the remedy and proof, too, of the old proverb, "There is no husband like an absent husband to beget many children." Prudence dictates that the absence be not a prolonged one, for there is another apt maxim, "It is not wise to tempt the Devil."



IX.

Concerning Secretions.



IN sterility, in addition to the normal secretions of the uterus, we find others which exert an appreciable influence upon fertility. We do not speak of the natural acid secretions of the vagina, or the alkaline secretions of the uterus, but of those exudations of matter which

block up the Fallopian tubes and other parts, as mucus blocks the nostrils,— a dried-up and agglutinated mass, which will allow nothing to pass, neither the spermatozoid the one way, nor the ovule the other.

All physicians know how difficult it is to successfully treat ozœna or catarrh, on account of poor constitution and the thickening of the nasal membranes. The ulceration which develops is not always an expression of a scrofulous or syphilitic taint. It is often simply due to the retention of mucus in a warm place, where the three conditions of putrefaction exist together; namely, air, heat, and moisture.

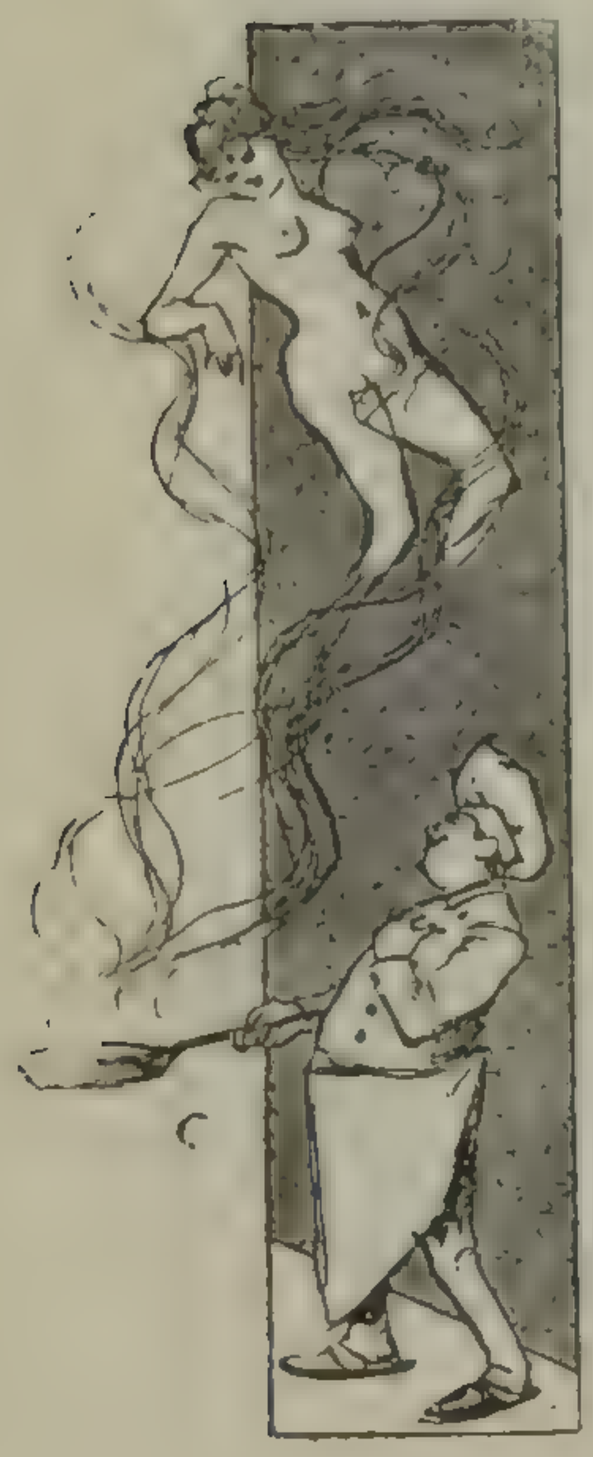
The Fallopian tubes are always moist and warm, but the third factor is lacking in the normal state; for the uterine cavity only nominally exists. The vagina, also, is a cavity only in name, the walls being in close apposition, like the leaves of a book. How, then, does putridity occur within these organs? The dead fœtus gives us the key to the remarkable power which air shows, of penetrating into the deep parts, and there setting up septicæmia. While the ovule is covered by its envelope, maceration, not putrefaction, takes place. As soon, however, as the continuity of the envelope is broken, even by the minutest

aperture, putrefaction sets in, and the surgeon is obliged to intervene promptly; while, in the other case, the dead fœtus may be carried for years in the womb, without any untoward symptoms or uneasiness.

This analogy shows that air may penetrate within the Fallopian tubes, and become a factor in sterility, since metritis (inflammation of the womb) leads to thickening of the walls of the uterus, thus forming a true cavity permitting the entrance of air, which may extend into the tubes, and thus set up those dull abdominal pains which sometimes occur, simulating peritonitis and rendering the woman sterile.

The false pains, sometimes preceding the monthly flow, are due to this cause, at least we know of no other. There is always an ovarian congestion and uterine turgescence before the periods. At this moment the uterine cavity, only nominally existing up to this time, becomes patent and real. The organ then acts as a siphon, sucking in the air, and also acts like a rubber bulb, forcing this air further in,— the thicker the walls the stronger the action. The pain, therefore, depends upon the amount of inflammation and consequent thickening, and the amount of air which enters the deep genitals.

If, however, one can cure the metritis, the premonitory pains disappear and fecundation becomes not only possible but probable.



In addition to septicæmia, other poisons, special kinds of ferments, may attack the ovule in its different phases and kill the spermatozoid. Without mentioning these at length, we may call attention to the fact that some women, at the menstrual period, would turn a sour apple, and spoil the

most piquant sauce by their presence alone. A peculiar odor, sui generis, emanates from them, and is perceptible to those around them. The reason of this is not easily explained; it is an idiosyncracy.



Science, to-day, knows the composition of certain odors of the body, and finds them to be fats uniting with elemental bases, such compounds resulting, for example, as butyrate of

soda, etc. These odors are not of the same strength in all women, but vary as the bouquet of wine varies,— some agreeable and attractive, others indifferent, others disagreeable and repulsive. This is the reason why, as Dr. Galopin says, "Love begins at the nose."

Apropos of perfumes, it is wise never to disparage tastes and colors, for what displeases one may please another. There is no accounting for tastes. The embryonic cells probably have the same affinities and dislikes as their proprietor.

Certain it is that some odors, which we cannot define, having no standard term of olfactory

comparison, are the cause, and the only appreciable cause, of sterility. This specific odor is so characteristic that it can be recognized among thousands. We have improvised a name for it, which, while conventional, indicates its character and origin. For as it occurs only at the menstrual period, it is proper to call it, "Rutinate of Ammonia."



X

Diatheses.



ONG series of observations show that man may have a special disposition to disease, congenital or acquired, by reason of which the tissues show a tendency to degenerate, owing to disturbances of nutrition, or lack of nutrition, leading, in their turn, to the production of a series of morbid products which involve the constitution in the

same state. Such is a diathesis.

These diatheses play an important part in producing sterility, for by poor nutrition the liquids of the economy become poisoned, and these being called upon to form the solid parts, there results a vicious combination which induces serious evils.

Strict observance of hygienic rules, special medication, and careful diet may eradicate the diathesis, or at least so modify it that conception becomes possible.

Among the principal diatheses having marked influence upon reproduction, scrofula and syphilis stand foremost and alone.

These two constitutional dis-

eases are intimately allied; in fact, one may be said to be the mother of the other, scrofula being the daughter of syphilis. Every syphilitic element which becomes fertile during the primary stage is destined to abort during the first four months; but if, perchance, the infant, reinforced by the greater health of the one partner, reaches full term, it will, without exception, be syphilitic. On the other hand, if the infant is conceived during the secondary stage, the chances are that it will still be born syphilitic; but if it is not, it will at least be tainted with scrofula.

During the tertiary period,

scrofula is the rule, less pronounced, as the syphilis has been successfully treated and as the period of inoculation is more or less remote.

Whatever the cause may be, these constitutional affections are hereditary, and become less pronounced proportionally to the number of crosses and the health of each party in the cross.

The long life and tenacity of syphilis is strikingly shown by the marriage of a negro with a white, or vice versa. Long generations pass away before black blood or its traces disappear, and sometimes it never goes. Let syphilis represent the black blood. Then consider that one

single cross between a black and a white gives a line of progeny which is still strongly marked at the twenty-seeond (22d) generation. What a length of time is necessary to destroy traces of syphilis and scrofula, even provided the conjoint factors are otherwise blameless!

Scrofula and syphilis, then, are powerful factors in modifying ovulation and its phases, and also exercise a pernicious influence upon the spermatozoid, thus preventing conception in either case.

Another diathesis, as common as either of the others, is tuberculosis, and its influence upon the procreative forces is as great.

Young girls, especially, poorly formed and undeveloped, are victims to this disease. As for marriage, which is sometimes prescribed as a remedy in these cases, God is witness of the pitiable results.

Sterility, unfortunately, is not the lot of those who are properly developed; they conceive only too easily, but each conception is a giant's stride toward the finale, and these unhappy women die in the second or third confinement, leaving a stunted progeny, which drags down with itself all that may cling to it. Surely the sowing here is a fatal one, and decimates the population without leaving a harvest.

It is otherwise with man. He, on the contrary, is predisposed to fecundity, the disease develing more ardent genital appetite every day, until at last he succumbs, leaving traces of his venom in his track, like the Parthian serpent.

While tuberculosis has this influence upon generation, it has no terrors not amply offset by the dowry, and consequently tuberculosis will live as long as the ages, or, rather, until the end of humanity, for it is so rapid in its advances that it threatens to kill off the human race, giving place to a new species.

Other diatheses have their influence upon sterility, so that if

syphilis, scrofula, and tuberculosis are not sufficient to prevent reproduction, by alternation of the quantity, if not the quality of the seed, then the following may aid in the result:



such, for example, as catarrh, rheumatism, arthritis, and the uric acid, herpetic and nervous diathesis.

All these alter or modify the ovule, as well as the spermato-

zoid, or annihilate them completely.

Catarrh injures and alters the ovule, and opposes the advance of the spermatozoid, environed, as it is in such cases, by a glutinous fluid from which it can not escape, or only with the greatest difficulty.





Rheumatism, even latent, paralizes the movement of the fringes

of the Fallopian tube, and the egg is thus lost.



Arthritis paralyzes the cilia, and the ovule, even if impregnated, dies in its place, there being no vibration of the cilia to carry it to the uterus.

The uric acid diathesis thickens the envelope of the egg, and fills it with a sort of crystalline deposit which prohibits the entrance of the spermatozoid.

The herpetic tendency, on the other hand, alters the membrane, polishing it, as it were, making it over-thin, so that it breaks

before fecundation can take place.

Nervousness, on the other hand, causes tempests of nervous energy, with spasmodic contractions, which too often injure





the egg by breaking it; it is, as it were, struck by lightning.

These diatheses just enumerated act upon man the same as upon woman, and his seed is

tainted with every character of disease from which he is suffering.

What a result if both are afflicted with the same diathesis, or different ones, the one adding to the other and muliplying the faults of each. Thus forewarned, the physician is forearmed. Let him be vigilant and not despair, for diet and rational hygiene may do much.



Part II.

PATENT STERILITY.



I.

Division of the Subject.



NOT to consume time in considering those monsters of rare occurrence which we sometimes see in practice, "freaks," which interest none but the morbidly curious, descriptions of which are fit for publication only in treatises on teratology, let us speak in brief

of hermaphrodites, "neither flesh nor fish," a lapsus naturæ, a slip of nature, showing that even she makes mistakes, and that even she may commit a blunder, fortunately not perpetuated, since these "faults" or "slips" cannot reproduce their kind, and are soon erased from the great "Ledger of Life."

These vagaries are not always complete departures from the normal. We often find cases where the sex is, to all outward manifestations, one beyond question or dispute, yet internally there has been an arrest of development, such as an absence of the ovaries of the

uterus in woman, or the testicles in man, although they may be present in a rudimentary form, "blocked out," as it were, showing that nature had commenced her work but failed to carry it to its perfect end. So, many artists roughly sketch out great conceptions, but are unable to finish them, the proof that neither above nor below is there anything perfect.

As the body of woman is subject to the aberrations of nature, so too is the body of man. He may be formed without penis or testicle, a literal and natural eunuch, dragging out a weary and sad existence, experiencing all the temptations of life and

all its miseries with none of its compensatory consolations.

For these unfortunates, no matter what the sex may or might be, there is no cure for the consequent sterility, no "Balm in Gilead" for suffering minds or craving bodies. Where there are no "tools" to work with nothing can be done. Ex nihil, nihil fit. Nature herself, the queen all powerful, in such cases loses her rights of eminent domain.

Patent sterility is, essentially, that due to easily cognizable facts. The first place is the woman's: to the queen all honor of rank is due. The last and least place is the man's,

who is the least subject to deviation, his genital keyboard being less complicated and less easily put out of tune.

Passing in turn from the tangible to the intangible, we commence with the secretions, inasmuch as they have great influence in sterility, and in and of themselves modify the solid constituents in such a way that all mechanical sterility seems to be primarily due to these causes, while those which are not directly due thereto may be so modified by them as to be induced thereby.

II.

Normal Secretions.



IKE man, nature has her vagaries, but not without reason, and it is quite essential that the seeker after truth should find this reason, if he would avoid the false path and not stumble on in ignorance.

Physiology long ago gave us the key to the mysteries and manifold functions of the saliva, or rather the several salivas, secreted in the act of mastication, each having its special duty to

perform in rendering the alimentary "cud" easily digestible: thus, one presents its water, another its viscosity, and still another its ferment, each and all having their part in bringing about the ultimatum of first digestion.

In this chapter we speak only of natural and normal secretions, not of morbid products; these normal secretions being absolutely indispensable to the perfect action of all functions. It is the oil, without which the wheels of the best machine would not revolve, the lubricant which prevents laceration and destruction of the organs.

All the genital surfaces are

bathed with secretions having special functions beyond the general law, which decrees that all mucous surfaces shall be moistened. Some of these secretions are viscous and serve as lubricants to facilitate the gliding of one surface over or within the other; others are very fluid, serving for transportation; in addition, the secretions have special and interesting physiological functions, some being acid, some being alkaline, and others neutral, each for its special purpose.

Reduced to simple phraseology, the female genital organs and apparatus consist of a passage way, or vestibule, as it

were, ten to twelve centimetres in length, leading to the uterus, the mouth, or, to keep up the analogy, the door of which projects from two to three centimetres into the passage, the so-called "anti-chamber of life."



At the entrance of the vagina in the thickness of the lips, there is, at each side, a gland, "Bartholini's Gland," which, at the first embrace, secretes a lubricating fluid to facilitate the entrance of the male organ without laceration either of itself or the female parts. This liquid is alkaline.

The vagina, or the vestibule, that leads to the uterus is, in its position and disposition, especially appropriate for the purpose for which it is intended. By its warmth, by its gentle compression, and by its magnetism, it determines an agreeable excitement, which leads to and terminates with the vene-

real spasm and the evacuation of semen. This excitement is far more agreeable and less injurious than that induced by onanism, whatever the means, due in a measure to the mutual exchange of magnetism or personal electricity.

The secretions of the uterus are always acid. Those of the uterus where the fœtus dwells, after the first or second day until birth, are always alkaline.

We have then a canal, whose termini are bathed in an alkaline fluid, while the main channel secretes an acid fluid. The question necessarlly arises, Why this difference? Why has nature so complicated matters and

so far departed from simplicity?

Nature does nothing without reason, and the reason, in this case, is found in the fact that the spermatozoids live in an alkaline medium and die in an acid one. This being established as an irrefutable fact by all authorities, we see that the spermatozoids must live in an alkaline fluid, but this alkalinity has its degrees, some fluids being almost nil, other fluids being excessively alkaline. To subserve its right purpose the seminal fluid must be just alkaline enough, not too much so, or too slightly so, but just enough.

On the other hand, the vaginal secretions are acid, the

degree having great influence upon the culmination of the procreative act. It is a question of saturation and equivalence, and whatever neutralizes or exaggerates this alkalinity must perforce be controlled by hygienic or medicinal measures, if conception is desired.





III.

Role of the Middle Vagina.

VEN if the husband is exactly what he ought to be, and exactly fitted to his spouse, the secretions being strictly normal and equivalent, or proportional, why does the vaginal canal secrete an acid fluid, when each extremity, as well as the sper-matic fluid, is alkaline?

This is explained by a logical hypothesis. The spermatozoid lives in an alkaline medium and dies in an acid one. The case stands thus: If you were suddenly thrown into the midst of devouring flames, threatening your life if you did not at once escape, you would, to put it mildly, be incited to speedily quit the immediate vicinity. Have not the spermatozoids as excellent a reason for hastening along, by the shortest route, to reach safety? They cannot go back. They must go forward. Their action is that of self-preservation, of one who, being exposed to burning heat, precipitately seeks the grateful shade.

Still another hypothesis is advanced to explain the fact of an acid, vaginal secretion. Whenever an acid is mixed with an alkali, heat is engendered, sometimes so great, when we mix a glass of acid and a glass of potash, as to cook an egg in five minutes. On the other hand, we know that when two heterogeneous bodies come in contact a greater or less current of electricity is developed.

May not this heat, on the one hand, and this electricity, on the other, play an important part in the activity of the spermatozoid, aiding it to traverse the long course stretching before it?

The frequent lack of success in procedures for artificial impregnation, which seems at first so logical and sure of success, is explained by this hypothesis, since it usually happens where excitation has not occurred through preliminary intercourse.

It has been observed that the spermatozoids in the male genital passages possess a relative vigor which is greatly increased as soon as they penetrate within the female passages. This is doubtless due to this chemical heat and electricity. Some, indeed, attribute this action to the greater alkalinity and purity of the uterine mucus, but proof is wanting that this medium is

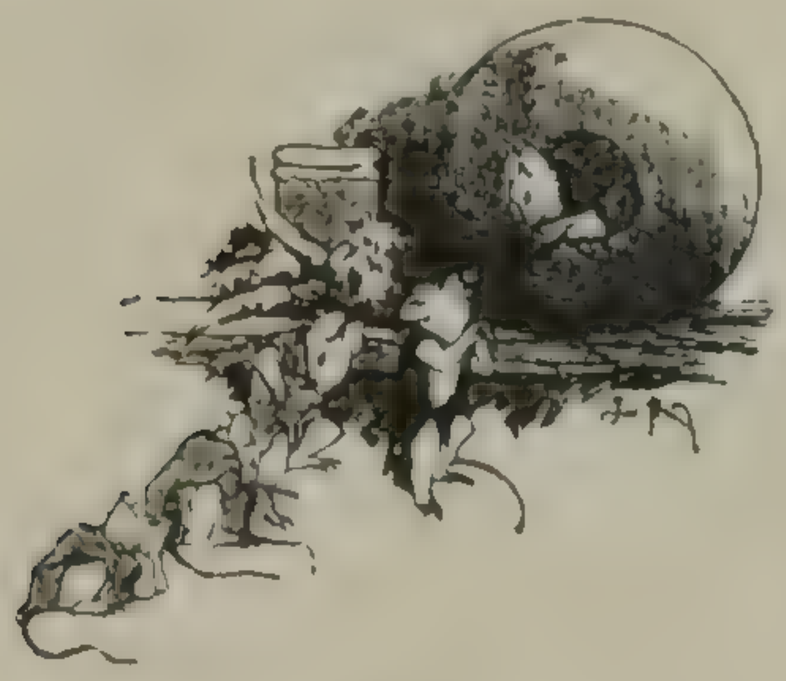
any more favorable than that in which the spermatozoid originated. The latter hypothesis seems heresy.

The spermatozoids seem more vigorous after reaching the land of promise, because they have been awakened from their sweet lethargy by the necessity of action, and in this action the victory is to the most wakeful and the most agile of the band.

If nature did not take this summary method of perpetuating and ameliorating herself, she would have to deplore the results of her indifference and inaction. Like the commanders of great forces, she urges us to battle and crowns as heroes

those alone who are strongest and have given practical proof of their courage and nobility.

Life is not a retreat, into which one enters to live easily without forethought or work: life has battles to fight, great conquests to achieve by strenuous efforts, into which only the brave can enter, and which only the strong can endure or maintain.



IV.

Abnormal Secretions.



ORMAL secretions may sometimes be a cause of sterility, since the alkalinity of the seminal fluid, or of the uterine mucus, may not be sufficient to neutralize the vaginal acidity to such a degree as to present the indispensable conditions for the life of the spermatozoid within it. If the normal secretions can destroy the

spermatozoids, how much more danger may lurk in abnormal secretions?

First, we must simplify the classification of these varied secretions, broadly classed, by women, under the name of "whites." The whites may or may not induce sterility, according to the nature of the secretions, and it is not unusual to find a woman "running" with the whites, whose tracks we might, so to speak, follow by scent, who, in spite of this fact, has children every ten months.

We must stop for an instant, until we get more light on these mysteries. The secretions come from one of two sources, the

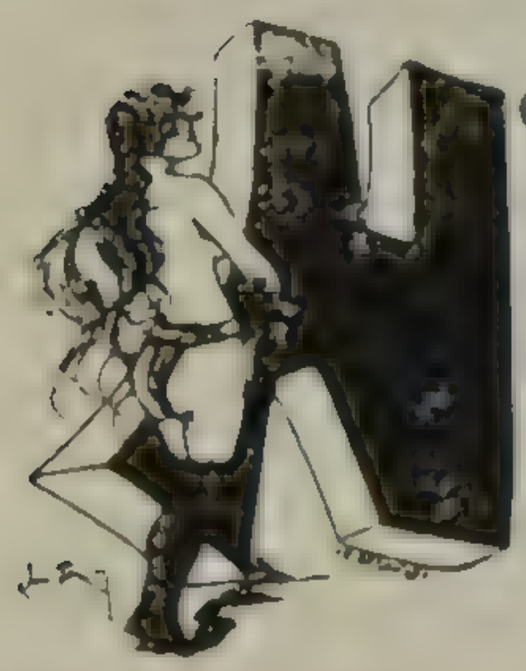
uterus or the vagina. The first is alkaline, the latter acid. The former secretion is innocuous, while the latter is fatal; the one permitting and fostering life, while the other destroys it.

The secretions of the uterus first demand study; the vaginal hyper-secretions need no study: they are "a priori," prejudicial to, and destructive of, spermatic life, and hence patent causes of sterility.



V.

Leucorrhoea.



ONE of the mucous membranes are without secretions of a lubricating character, thus allowing contiguous or opposing surfaces to glide over each other smoothly and without friction. The uterus is no exception to the rule. It is also an extremely sensitive organ, which easily catches cold.

We use this phrase intentionally, since it perfectly expresses the idea and fact, and especially intimates the nature of the flow which ensues, with its form, its color, and its periodicity.

There are some men who always have a handkerchief at the nose or in their hand, and there are some women who always have a napkin elsewhere. Microscopical analysis, as well as chemical, proves both of these mucous discharges to be identical in character, this character being too well known to need precise description. It is a curious fact that women who use many handkerchiefs also

use many napkins, and vice versa: a true reciprocity exists.

Admitting this fact, we can also conceive that, by temperament, certain persons are more susceptible to a cold than others, and that one may catch cold and yet not be compelled to use a handkerchief or a napkin for personal comfort. Such a disposition occurring in a woman is an important fact bearing upon the causes of sterility, and its existence should therefore be ascertained early in the history.

Of course it is better to have no cold rather than a slight one, but if the flow is slight and scant, clear and without inflam-

matory characters, it will have but slight effect, if any, in preventing conception; but if it is floculent, thick, and viscous, then it becomes a mechanical obstacle, for every door obstructed by passers-out prevents the entrance of comers-in. The logical deduction is clear. Moreover, there exists a type of uterine catarrh which is discreet, never showing its presence by external signs, which must be searched out and wiped away, just as it is necessary, sometimes, to violently and repeatedly blow the nose, to clear it of mucus.

It is easy to see what a striking analogy exists between the

two organs. The same difficulty meets the spermatozoid in its attempt at entrance to the uterus that is met when one attempts to take a pinch of snuff when the nose is stoppod by a cold in the head.

Sterility dependent upon the whites is due not so much to the quantity as to the quality or density; but this cause of sterility is none the less potent, when it does exist, and it must be carefully investigated, both as to cause and effect. Its removal, simple as it is, will often remove the sterility, and make one more happy family.

VI.

Quality of the Whites.

NOW that we have seen the power exercised by the density of the secretions, let us examine the quality.

Every mucous tissue which secretes the right quantity of fluid to keep it moist is in a normal state. When it secretes an excess, it is due to irritation. When the excess is great, there

is catarrh, that is to say, the tissue is denuded of its epithelium, and the parts become angry, red, or even bloody. The quality is here not so important as the septicity. A fluid which holds in suspension organic debris, whether simple cells or membrane, quickly becomes putrid and emanates an ammoniacal odor, denoting complete putridity, or at least commencing disintegration and decomposition. A spermatozoid finding itself in these environments is "in the soup," to speak colloquially.

They say in rebuttal of this theory that many country women, absolute strangers to

the most elementary laws of cleanliness, bear children by the dozen. Every one must have noticed this proliferity, but it is explained by another simple fact, that this uncleanliness is not a disease: it is a simple habit, one of carelessness on the one hand, one of prejudice on the other, in those who think that any woman who performs the genital toilet is a coquette, to say the least. The acidity of the vagina here plays a most impor-



tant part in its excitation of the spermatozoid, causing it to leave the uncongenial medium, and to enter one more adapted to it as a habitat.

However great the uncleanliness of a woman, it extends only a short distance within, stopping several centimetres



from the uterus. The peasant has no fouler or saucier tongue than the citoyenne, even if she never washes it. It is the same with the entrance of the uterus, which is absolutely clean, her good health, her sobriety, and the fresh air of the country, predisposing admirably to the

fabrication of infants. Epicures may complain of the bad appointments of the entrance, but what does that matter, if the cooking be good.

Perverted uterine secretions are, therefore, more dangerous than perverted vaginal secretions. If this secretion has septic qualities, it will surely kill all spermatozoids which may fall into it.

Treatment is, therefore, of the utmost importance in overcoming sterility due to this cause, but these secretions, it must be remembered, are dangerous only when changed in quality. The quantity is approximately immaterial.

VII.

Uterine Secretions.



VEN catarrh, properly so called, merely a greater or lesser exaggeration of the physiological secretions, may induce sterility, but there are other pathological secretions, deplorable in results, essentially purulent and toxic, fatal to the spermatozoid, and manifestations of true disease of the uterus.

Under the influence of a mor-

bid process the uterus becomes inflamed, congested, and infiltrated; the mucous tissue becomes wrinkled, fungoid, and spongy, easily bleeding. This is not a simple exaggeration of secretion; it is a true suppuration. The secretion no longer has the benign character of the simple albuminous whites; it is true gray pus, sanious, caustic, corrosive, gnawing and eroding every tissue that it touches, and inducing a maddening itching of the vulva, a torment to the afflicted woman. Redoubled cleanliness has no effect: the evil does not lie at the door, the lips of the vagina; it is deeper seated. Only by treating the

uterus and its mucous membrane can we expect to effect a cure, or even relieve these unfortunates, otherwise condemned to the most infernal torture, especially in public, where they have no opportunity for temporary relief by scratching.

In such an environment, fecundation is impossible, for the egg is a veritable graft. No surgeon would think of grafting a slip of mucous tissue upon an inflamed, erysipelatous, or gangrenous wound before treating the wound and curing the inflammation, any more than an arbi-culturist would graft a tender shoot into a rotten tree.

Even if the ovule was impregnated under such circumstances, even if it were not destroyed by contact with virulent pus, it could never be engrafted upon diseased mucous tissue. It would be suffocated by the noxious surroundings, drowned in the lethal secretions in which it might bathe.

The first condition that concerns us, where conception is desired, is the territory in which the ovum is to sojourn during the nine months from seedtime to harvest, and from which it obtains its nourishment. The human inception is the same as seed-sowing. The soil must be suitable, and properly prepared.

If we sow regardless of the soil, we ought not to complain or be disappointed if we do not reap the expected precious harvest.

That our work and care may bring fruitful results, we must carefully investigate the fluids and their containers, and especially attempt to make them healthful.

Nature has taken the utmost pains and precautions to assure the reproduction of her kind, and sterility is often only a mere accident of unfavorable circumstances or combinations.

We should consider the fact that this disposition is due to perfect integrity of the organs, and this in turn is due to the

strictest hygiene of the sexual organs and functions and in the sexual relations.



VIII.

Vaginal Secretions.



LIKE all other mucous membranes, the vagina naturally secretes a fluid acid in character and never a cause of sterility, when normal; on the contrary, it stimulates the spermatozoids by tending to neutralize the alkalinity of the semen, thus inciting them to seek an alkaline medium and to enter the haven awaiting them.

If, however, the secretion be-

comes excessive, or if fermentation sets in, it becomes a cause of sterility, producing too great chemical reaction, or perhaps not sufficiently neutralizing the seminal fluid, thus causing death of the spermatozoid by too great or too prolonged stimulation.

In fact, the anatomical relation and arrangement of the vagina tends to favor and allow of the accumulation and retention of foreign matter and substances secreted by its glands and lodging within its folds. The hygiene of this canal is, therefore, of the greatest importance, playing so important a part in the genital energy.

If you make a specular examination of a country woman a few days before the "show," you will be surprised to find the valves of the instrument filled with a soft caseous substance, having a very disagreeable odor. If, with a spatula, you scrape the surface of the vagina, you may easily obtain twelve to fifteen grammes of a yellowish substance of the density of butter, acid in reaction, soluble in water, and more so in glycerine and the menstrual fluid.

It is manifestly impossible for from five to six grammes of alkaline fluid to neutralize such an acid mass, and this woman is generally sterile before the

menses. When they appear, the blood dissolves and carries away the greater part of this magma, the remainder being neutralized by the alkalinity of the secretions from Bartholini's glands, on the one hand, and the uterine mucus and seminal fluid on the other. This is how children are made in the country.

If a shower of rain is necessary to give the country man a bath, so a sanguinous shower is necessary to flush out the vaginal waste which has accumulated as the result of indifference to cleanliness.

On the other hand, the question arises, Does the city wom-

an have any more chance of bearing children, on account of her vaginal cleanliness, even excessive? Does irrigation, or thorough washing of the parts, within and without, before intercourse, favor conception?

Evidently not, for, on the one hand, water is the best of solvents for the spermatozoid, and on the other hand, it weakens the vaginal acidity necessary to incite the spermatozoids to renewed energy. Women who make the vaginal toilet in the morning are more likely to conceive than those who make it in the evening, or just before the moment of the sacrifice to Venus.

Vaginitis, on the other hand, ensures sterility, as the blennorrhagic virus is destructive to the spermatozoids.

Vaginismus also induces sterility, on account of the pain and spasm which prevent the entrance of the semen and even prohibit intromission of the penis.

All vaginal secretions following excessive inflammation, or due to diatheses, render the spermatozoids inert and fruitless.



IX

Secretions of Man.

We have said that man was subject to fewer functional troubles of the genital organs than woman; he has neither a menstrual flow nor leucorrhœa, for which he should be truly thankful; he has none of the ups and downs of monthly turns, and does not wait on the full of the moon; he is always ready and always the same, semper paratus et semper idem.

In this respect man has incontestably the advantage over woman, but he has miseries of

which we shall presently speak. He has his share in sterility, and according to statistics this share is a large one, but we are limited at present to a consideration of the secretions and their role in procreation.

As woman secretes two fluids in the vaginal canal, the one acid, the other alkaline, so man has the same disposition, on the same plan and for the same end.

There is no need of speaking of the striking analogy which exists between the genital apparatus of the two sexes. It needs no evidence or argument to show that the one is made for the other and that they are

complements. The same similarity exists as to functions. Thus the penis is analagous to



the vagina in the character of its secretions.

The woman, at the first touch of love's embrace, secretes an alkaline fluid to allow of intromission without pain or laceration of either organ.

Man, on his side, at the first contact, also furnishes an analagous secretion, which lubricates the whole length of the urethal canal with an alkaline fluid derived from

Littre's and Cowper's glands. Thus, at the venereal spasm, the spermatic fluid finds the whole length of its path, of sixteen to seventeen centimetres, freely sprinkled with fluid facilitating its passage. This secretion may vary in quantity, as well as quality, but it is essentially alkaline and slippery, a lubricant analagous to the secretion of Bartholini's gland in the female.

The vaginal acidity also has its analogue in the large mucous surface beneath the prepuce. This preputial mucous surface secretes an acid fluid, which even cleanliness only temporarily removes, and then only in part, for in a few hours, even after

the most scrupulous toilet, the acidity reappears to assist in stimulating the spermatozoid.

The part which the prostatic secretion plays in sterility is subject to question, but that it does play some part is certain. The prostrate is often diseased, and its secretions must then obviously be abnormal. This prostatorrhœa is a common lesion, leading to thickening of the organ as surely as does spermatorrhœa.

X.

Origin and Course of the Spermatic Fluid.

THE spermatic fluid does not come from a single source, as the majority of people, and even physicians, think it does. A very small portion comes from the testicles. This, it is true, is the essential part, but the greater part is a liquid secreted by all the mucous tissues of the genital tract.

Before discussion of sterility in the male a brief description of the anatomy of the genital tract is in order.

The spermatozoid is manufactured in the testicle, thence it is received into a small reservoir, situated between the testicle and the epididymis, thence it passes through the inextricably tangled and meandering ways of the epididymis to the deferent canal, then it is stored up in the seminal vesicles until copulation, which sends it on its way to fertilize the ovule.

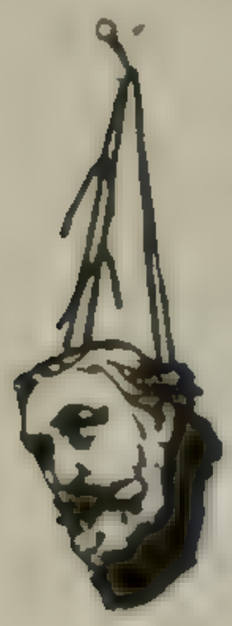


The epididymis is a singular canal, rolled up like a ball of cotton, wound so many times upon itself that, when unravelled, this little hollow

thread measures at least six metres (18 feet), and sometimes as much as ten metres (32 feet), in length. This canal being so thread-like and so long, it is not strange that its bore is easily obliterated. The slightest cold, the least contusion, the slightest irritation is sufficient to bring the walls of this microscopic canal into apposition, and thus to destroy its permeability. Hence sterility very often results, almost irremediable in its character, for who would have the audacity to interfere by operative procedures upon a canal which will not admit the finest hair?

True, nature in her foresight has given us two similar canals,

each independent, so that even if one is obliterated the other functionates. So we have two eyes, delicate organs, it is true, but in no way comparable to the delicacy of the two passages in question. One may be blind in one eye and yet see, but the other eye is sufficiently resistant to withstand much ill-use. Not so with these delicate and extensive passages. Since the happiness of man in reproducing his kind hangs by so slender a thread, exposed to so many accidents and contingencies, it is certainly not wise to sit upon it too hard.



The deferent canal, a continuation of the epididymis, measures at least forty-five centimetres in length. This, it is true, is more permeable, admitting a bristle in its bore, but when we consider that stepping on a hose pipe will cut off the stream, we see that a slight pressure will close the canal carrying the stream of seminal fluid. Still, nature has made the walls of considerable resistance, so there is not great danger of stopping the supply.

At last the spermatozoid is emptied into the seminal vesicles, nature's reservoir of the elixir vitæ. Here it is subject to every chance and accident, and

here it is ready to give life at the first opportune moment that occurs. If, however, the precious fluid is wasted, it takes time to renew it; its progress is slow and its journey long.

From the cup to the lips is a long way, they say, but beyond the testicle there is at least six and a half metres stretching before the spermatozoid, and he travels neither on foot nor by carriage. He has to work his passage, perhaps making only two millimetres a minute, only twelve centimetres per hour, and two metres only in a day of twenty-four hours. The spermatozoid therefore needs from two to four days to make the journey.

We know that the secretion of spermatic fluid is accelerated by the habit of coitus, by venereal disease, and even by moral and physical excitement, but is it prudent thus to hurry nature? Is it not wise, on the contrary, to wait until she repairs losses?



XI.

Nature of the Seminal Fluid.

THE testicles secrete only a small portion of the seminal fluid; the spermatozoids alone originate here. The fluid in which they swim is composite, secreted as it is by the glands of the deferent canal, the glands of Cowper and Littre, the prostrate, and the seminal vesicles.

Hence the composition varies with the individual, according as he secretes more or less mucus from each organ implicated. Consequently, numerous causes

of sterility arise, according as the fluid varies in which the spermatozoids are bathed.

It is the history of the fish in water. All water has not the requisite respiratory and nutritive value to support life : fish must find in water, air and food, to supply their needs from day to day ; otherwise they will weaken and die.

Briefly described, the secretions are as follows : The testicles secrete a very small quantity of thick, creamy, yellowish fluid, solely composed of spermatozoids and epithelial debris. The deferent canal and vesicles emit a large quantity of slightly brownish, serous fluid. The prostrate

emits an absolutely white, milky fluid. Cowper's and Littre's glands emit an oleaginous, viscous fluid, of the consistency of syrup.

As a rule, seminal fluid of prime quality is quite thick, semi-transparent, yellowish, of good consistency, and has an odor resembling chestnut flowers or chlorine ; it turns watery after exposure to air. White or bluish sperm, of milky consistency and weak odor, is worthless. On the other hand, thick, clotted, and gelatinous sperm is not worth much more.

The entire quantity varies as the quality. The mean is eight to ten grammes ; it may rise or

fall below this quantity, but it is then abnormal, in proportion as it increases or diminishes. The amount may vary from one to twenty grammes, and the density from one to one and seven-tenths.

These facts and figures show the possibility and range of male sterility due to abnormal secretions.

XII.

Quality of Spermatic Fluid.



QUESTIONS of the value of spermatic fluid can be only approximately settled by a casual examination. The microscope must be used to answer the question with any degree of certainty.

We say "degree" intentionally, for in medical science it is

difficult to affirm anything absolutely. We may assert probabilities and possibilities, but these are subject to so many contingencies and disturbing influences that we cannot affirm anything as an absolute fact.

In using the microscope a medium power is preferable to a high power, as the image is thus more clearly defined, the field larger, and the number of spermatozoids in view is greater.

With but one specimen to examine it is difficult to make comparisons. Roughly speaking, the average spermatic fluid has about one quarter of the field filled with spermatozoids, the remainder being seminal

fluid. To speak figuratively, fish are plenty and fishing attended with good luck.

On the other hand, other specimens show but few spermatozoids, here and there; the fisherwoman hopes, but catches nothing.

Again, we find specimens having such an abundance of spermatozoids that they resemble anthills in activity; the quantity is prodigous and the swarming is marvellous. Here life is overflowing and the woman is, as it were, in danger of conception by contagion, even at a respectable distance. This latter sentence is, of course, figurative, but the abundance gives rise to

the thought, if not to the reality. Women are afraid of venturing onto ant-hills, even with lifted skirts, for there is danger that the ants may climb.

We class spermatic fluid, therefore, according to the number of spermatozoids seen under the microscope, as weak, average, and strong.



From these types we have every deviation ; to approximate to the strong type, is to hold the winning card ; to approximate to the weak type, is to hope in the aid and goodness of Provi-

dence, which always provides for the lame, the halt, and the blind.



As the quantity of spermatozoids in a specimen is of value, so is the quality. Nature, as we have said, to perpetuate the species in the best manner, has organized a kind of steeple-chase, and awards the palm only to the swiftest and strongest. The mere act of being present is not enough; there is a race to run, and this race requires vigor; thus, vigor plays an important part in the value of the semen, and the problem is thus complicated, for

we have no measure except the eye, and this, if not rigorously held to account, will deceive us.

In examining a specimen of sperm we must therefore consider, first, the time elapsing between the emission and examination ; second, the season and its influence ; third, the surrounding temperature ; last, but not least, the emotions of the man, who is under abnormal conditions, far different from those surrounding him in the congugal chamber and marital embrace.

As a general rule the spermatozoid has the same vigor as the man who secretes it. It shares his temperament and health. In young men they are long,

slender, and vivacious. In mature men they are larger, well filled out, and energetic ; in old men they are small, with long heads, deformed tails, immovable, or struggling ineffectually.

For one who is not an expert, a microscopical examination is difficult in execution and unsatisfactory in result ; this is especially true for the man of the world. To such an one the microscope reveals astonishing things which will only affright him, and probably needlessly alarm him ; let him consult his physician. Even he, if his judgment and knowledge has not been highly educated in this specialty, will scarcely be able

to give a trustworthy and intelligent opinion, inasmuch as comparative specimens are needed, and the question of vigor can only be solved by a practical eye. The form alone cannot solve the question, any more than the relative quantity.

Under the micrometer, in a warm chamber, at a normal bodily temperature, the spermatozoid ought to measure about three millimetres in length. Their active life always depends upon the vigor of the subject from which they come; to awaken and stimulate them, heat applied under the stage, up to a certain degree, is sufficient, but beyond this they will

be cooked and the fluid dried up ; cold, on the other hand, freezes them up and renders them immovable.



XIII.

That which Kills and that which Animates the Spermatozoid.



ONE of the deplorable facts shown by statistics is the depopulation going on amongst the higher classes. This is attributed to the doctrine of Malthus and his proselytes, but there is another

factor more fatal to man than this doctrine.

This fatal factor, this phylloxera of infants, is—would you believe it?—pure water! Yes, Hygiene, the goddess of health, is the criminal, the ogress who, so to speak, lives in infantile clover.

This water is the element of fatality for the infinitesimally small, while it is the salvation of the greater. It is a weapon of two edges, the defender of life and strength to one, the destroyer of life to the other. Malthus was a dreamer, a utopian; the true criminal is Eguisier, with his irrigator.

This does not apply to general cleanliness. We speak of its sterilizing qualities only. Too complete or too deep-reaching cleanliness leads inevitably to sterility. If fertility is to result, the night of consummation must be celebrated with a superficial toilet as early as possible before the psychological and physiological moment.

☞ Notice is hereby given to young women desirous of maternity that water, hot or cold, is fatal to embryonic beings.

Water is the best solvent of spermatozoids. A cubic centimetre of water will break up

several drops of seminal fluid so that even the microscope discloses nothing but debris. The spermatozoid is destroyed by water more surely than by any Malthusian trickery. So we say, advisedly, the sole cause of sterility is often simply excessive cleanliness.

Cold is another element of sterility: not only does it break up the seminal fluid like water, but it stupefies and paralyzes the spermatozoid, which amounts to the same thing. Here we come again to the secretions. The mixture of the alkaline fluid from the female parts with the acid of the vagina develops heat sufficient to raise the tem-

perature of the vagina one or two degrees. To neutralize this stimulating caloric, by a cold water injection, is to oppose and prevent the adaptations of nature, for not only does it lower the temperature, but it removes the factors developing it.

Water, therefore, should be proscribed in the vagina for several hours preceding intercourse, for, while water is a solvent, cold water is worse, as it subtracts the heat necessary for life.

It is a singular fact, showing the wise provisions of nature, that while water kills the spermatozoid, it is not so with urine,

milk, saliva, serum, or blood, the latter conserving and stimulating the spermatozoid.



XIV.

Are Spermatozoids Living Beings or Simply Cells?

SAVANTS have disputed and still dispute this question. Buffon says, Yes; Robin says, No. It is the everlasting feud of science and philosophy which wars about words, when all are agreed upon the thing. Some even say that the spermatozoid is a corpuscular animalcule, even having different sexes, and in the seminal fluid, they would have us believe, there is a world of good people, of different

tastes, manners, and destinations; while others see only nucleated cells with cilia.

Whether we think them cells or animals concerns us but little. If, as Descartes says, "I think, therefore I am," the spermatozoid may with no less reason say, "I move, I go where I will, therefore I am an animated being." In truth, when we watch a spermatozoid under the microscope, we find it endowed with a certain degree of apparent intelligence: it moves and directs itself according to its desires; if it meets an obstacle, it passes around it or over it, as it judges it to be impassable or only of slight importance.

This is instinct! you say? We wish there was more of it, for there are some men in the world who have no other reason for moving.

In spite of these remarkable investigations and excellent reasons for the cellular idea, we continue to see a living, organic molecule, having had, it is true, a cell for a cradle, but from the beginning having a free existence. We see an instinctive, intelligent individual, running its course of chance and disappearing from the scene, after playing a role of greater or lesser importance, as the case may be.

Man has no other origin. He proceeds from the union of two

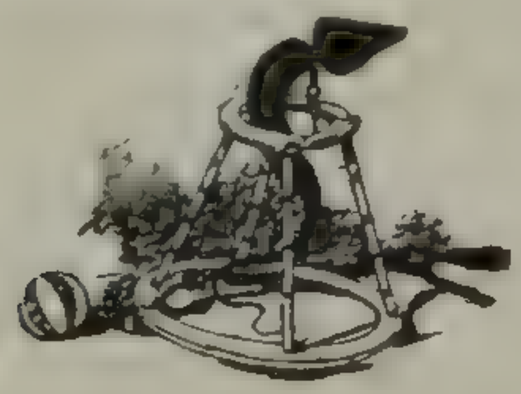
small cells, and sometimes he remains as small as the original cells, and no léss an animal.

The subject is not introduced to open discussion. It simply introduces certain theories which, in turn, explain certain facts of observation coming within the domain of the practicing physician, which may lead to misinterpretation and set our feet in error and false paths.

Admitting the animalcular theory, we must treat the spermatozoid as a coming parent. We should fear that they may resent harsh treatment, and think they may have rheumatism, chills, or fever.

Admitting the cellular theory, we are more at ease. We can handle them a little more like paving stones, and not be fearful of injuring their susceptibilities.

However, whatever theory we adopt, we shall find in practising artificial impregnation that it is prudent, at least, to treat the spermatozoid like a younger brother in humanity; otherwise, we shall be subject to unpleasant surprise, and often fail in our purpose.



Part III.

MECHANICAL STERILITY.



I.

Division of the Subject.

DESCRIPTIONS of latent or concealed sterility have already been given in the first part of this work; in the second, patent or visible sterility is considered, that is, sterility, evidences of which are manifested by analysis of the liquids, or by microscopical examination, it being the intention to progress from the intangible toward the material.

Following this order, we come to the organs in their ensemble. That which dominates all other affections, in this order, is metritis, a very common malady which is at the bottom of most genital troubles.

We shall consider this lesion in its genesis, and follow its progress step by step, as it develops into the multiplex genital disorders which are, after all, in most cases, simply modifications of this primary initial malady.

Later, we shall consider uterine deviations, with their consequences, in the causation of sterility; but let us first and right here remember that these

very deviations, whatever their nature, are the result of primary metritis. To cure these disorders it is necessary to untangle the snarl in the same order as it was tangled up, otherwise we shall lose the guiding thread which alone allows us to find the causes and effect a cure.

We shall continue to speak of the woman first and terminate with man, as heretofore.

Woman is exposed to many causes of metritis which the female animal is exempt from, causes coming under three heads, Menstruation, The Upright Position, and The Conjugal Regime.

These causes acting singly, or in combination, often provoke

metritis, and only by the greatest care and precaution can woman alleviate or prevent these troubles.

II.

Metritis.

QUESTIONS of degree are of the utmost importance in the matter of sterility. Metritis is simply an inflammation of the uterus. It may be merely a temporary reddening or flushing, or it may be very severe and grave.

The uterus is an organ of slight sensibility, so that it may be squeezed, crowded, twisted, pricked, or even burned, without exciting marked pain.

Our skin is a protective envelope which has, on the contrary, highly developed sensibility. It is the guardian which wakes while the inmate sleeps. The skin is a net-work of interlaced vessels and nerves, which render it so sensitive that even a pin-prick is simultaneously and instantly resented and perceived. The nerves carry the painful impression to the brain, for all the nerves which radiate in the skin rise from the spinal cord.

It is not so with the uterus, an internal organ, which has nothing to do with perceiving external violence or shock. Its nerves are not educated to this

purpose. They arise, not so much from the spinal cord, as from the sympathetic system, which deals with moral emotions, and not with physical pain. The uterus is more surely impressed by an offense than by a blow; hence the slowness of impression and the consequent duration. Whatever is quickly irritated is quickly calmed, and the reciprocal is true.

The uterus is, then, an organ which feels physical impressions but slightly; hence its tolerance, but also the seriousness of its lesions, for when one perceives the evil, it is so well grounded that it cannot be easily put out.

If the uterus possessed nerve branches from the spinal cord, it would quickly resent the prick of a pin, but with only vague nervous sensations of pain; it resents tomorrow the blow that it receives today.

The character of the impressionability of this organ being known, it is less surprising that lesions arise therein slowly, but none the less surely; nor need we ask how it is that women most careful in health matters may not carry their caution to the perfect end.

Metritis is an inflammation of the uterus, coming from various causes, as mentioned later. This inflammation may be transitory

in nature and disappear without leaving traces, but it may, as in all other organs, persist for a longer or shorter time, and pass into the chronic state.

The eyelids may become reddened from the reflex action of a speck of dust in the eye; the dust being removed, the inflammation disappears in its turn. But if the eye is again and again filled with dust, today, and tomorrow, and the next day, the edges of the lids become red, thickened, swollen, and finally granulated, and the cause may then cease, leaving the result.

The uterus acts in the same way. Slight irritation passes

away, leaving no result. A second following disappears less quickly, and finally erosion and ulceration appear, and simple metritis becomes severe and chronic.

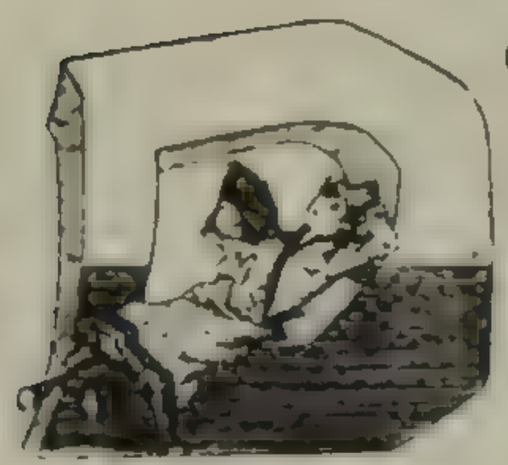
The beginning of this inflammation is usually at the neck, which is most exposed to shock and injury. This becomes swollen and deformed, and takes every type of aspect, according to the disease and amount of surface involved, creeping from point to point and passing be-

yond the zone of insertion, involving the body of the organ partially or as a whole, according to the degree of inflammation. It then becomes complete metritis. When only the mucous membrane lining the cavity is involved, it is called internal metritis, or endometritis; when, however, it involves the entire tissue, it is called parenchymatous metritis. In the latter form the organ is doubled or even tripled in size, and aside from the inflammation and suffering caused directly by the disease, there is an indirect action upon other organs, which, owing to its increased weight, are crowded

and pushed out of place and functionally disturbed. These, the rectum and vagina, being essential organs, there is considerable general disturbance following metritis.

III.

The Vertical Position.



DOUBLY unfortunate in anatomical construction, the uterus of woman, the only one of the female sex, is placed in an upright position, and furthermore, the opening of the canal leading to it looks downward, and is without sustaining power or protection of any kind.

Under these conditions the womb constantly tends to descend, dragging upon the lateral ligaments, which become "tired" and relax, unless reasonable rest is given them by a recumbent position.

In the large stores of great cities young girls and women are obliged to stand twelve and sixteen hours upon their feet, without the privilege of sitting down, under penalty of discharge. Such an outrage against humanity is absolutely revolting and heathenish, since the vertical position has most deplorable and painful results upon the general health, causing uterine flexions and mis-

placements, and effectually preventing the possibility of fertility, or even conception.

But the lot of woman is so cast, in many cases, that she is obliged to earn her own bread and to undermine her constitution, which by nature is admirably adapted to maternity, but not for the role of day labor. Here she is condemned to "trot around" all day, except, perhaps, on Sunday, her only day of rest, a day which she usually devotes to a "run into the country" for fresh air, still at the expense of her legs, which never rest.

Paradoxical as it may appear, the true position of woman is an

horizontal one; at any rate, it is the rational one. The Orientals believe in this so firmly that they have no place for women to sit down: they must recline.

Although this vertical position favors uterine deviations and flexions, silly woman adds to the causes which produce these disorders. From morning till night she binds herself with a corset which crowds all the o gans into the lower part of the abdominal cavity, increasing the tendency to displacement by their added weight and pressure, forcing the organs to seek an outlet through the only open passage.

Coquetry adds its share to natural predisposition: dancing, stopped only when the breath or the night gives out; prolonged running of the sewing machine; the everlasting climbing of interminable stairs; ten-mile walks in five-cent stores, looking for bargains, and all such leg exertion, combine to cause uterine displacements.



These troubles are aggravated by the fact that the neck of the uterus rubs against the bony parts of the pelvis, instead of

the soft cushions prepared for it by nature, and just as in walking constant friction and pressure of the shoe causes a corn, so in many women we find a true thickening of the uterus, as it were, a callous, due to constant friction upon the hard parts of the pelvis.

The female animal has not this inconvenience. Her uterus, on the contrary, tends to descend toward the middle of the abdomen, and not toward the vulva; the intestines serve as soft cushions, or buffers, always ready to fulfill their purpose; they wear no corsets, neither do they dance; they do not climb to the fifth floor, and

they sleep with — the hens.

Woman does not follow precisely in the same path, but to be a true mother she must at some time be a true female.



IV.

Menstruation.

THE female animal does not have often recurring menstruation, a fact that contributes not a little to animal health. Woman has an ovarian and uterine congestion every month, a sort of flux, involving all the genital organs, to a greater or less extent, and inducing malaise, and often pain. The uterus increases in volume; its mucous surface is destroyed by the blood pressure, and the general and local disturbance ceases only with the uterine hemorrhage.

Such a delicate organ as the uterus cannot, with impunity, suffer every month from the same disturbances and the same pains. The morale of the woman is not alone affected: deformities may ensue which react fatally upon fertility. In reality, the uterine hemorrhage seldom occurs in a regular manner. The uterus does not always lose the same amount of blood: there may be remissions in the flow, or the neck may not be sufficiently permeable or dilated to allow the escape of the blood secreted, so that the blood coagulates within the cavity.

If the blood, when liquid, cannot escape from the uterus,

it follows that it escapes less easily when it has become clotted. Hence powerful bearing down is necessary, and hence tearing lumbar pains occur, resembling the pains of labor, for, if the clots are to pass out through a filiform opening, they can do so only under the influence of pressure from within.

Again, some unfortunate sufferers lose the menstrual blood at two times (en deux temps). First the serum, or liquid part of the blood is secreted, and then the clot is actually delivered, by a true, though slight, accouchment.

These painful menstrual periods are classed under the

broad head of dysmenorrhœa, a lesion which is benign as far as general health is concerned, but fatal to fertility, since nine times out of ten the ovule is expelled from the uterus by the same bearing down pains that expel the clot. Thus every woman who suffers from dysmenorrhœa may to all intents and purposes be considered as unalterably and incontrovertibly sterile.

But this lesion is not always so simple. Under the pressure of the uterus, if the blood cannot gain exit by the neck, it clots within the uterine cavity, and, like a snowball, increases by accretion, until it distends the elastic uterus to its utmost

capacity; then the blood may flow back along the Fallopian tubes and spread through the peritoneal cavity, that is to say, retro-uterine hemorrhage takes place, with all its dangers and fatal consequences.

Even if the disorder does not progress so far and the blood does not escape from the uterus by the tubes, still the clot is so large that it cannot pass from the uterus as a whole, but must be delivered piece-meal by painful bearing down. In addition, the uterine mucus is rendered abnormal, and hence membranous dysmenorrhœa occurs, which is like torment to the woman, and leads her to expect

the cruel moment with fear and dread.

In such a congested state only misfortune and banishment await the ovule.



V.

Conjugal Regime.

If the upright position and menstruation are efficient causes of sterility in women, we cannot complain, for these two causes are not dependent upon the will, and cannot be removed. These are necessary evils which must be endured, and whose consequences must be palliated by every means possible. But the conjugal regime is directly under our will, and can, by will power, be altered the moment it threatens or involves the general health.

Of all the causes of sterility, there are none more certain or more frequent than abuse of the conjugal regime. The female genital apparatus is an ensemble of exceedingly delicate organs, highly impressionable by emotion. To invite its attention is one thing, to insist is to travel with a check-rein. The expression that mortals may slip into heaven when they cannot push in ought to be remembered. Conception is of the nature of a surprise. The pitcher that goes often to the fountain will be broken at last, but never filled.

The ovule, as we have said, requires twenty-eight days to

arrive at maturity; to expose it to storms and tempests is to hasten the fall of the unripe fruit, but this loss is only temporary, for the following month it will be renewed. The danger lies in the possibility of altering the mold where the ovule is made. In former times the uterus was, not without reason, called the matrix, for it is a true mold, serving to cast the human form. To injure or break the mold is to lose all power of casting from it forever. The proof is in the following chapter.

VI.

The Honey-moon and Metritis.



NDER ordinary circumstances a girl of eighteen fulfils all the qualifications necessary for reproduction. She is healthful, of strong constitution, and ripe for marriage, while everything indicates that she will or can become an excellent mother.

The day of marriage arrives, with all its fatigue and excite-

ment, and on the morrow she seeks her physician, dark circles under her eyes, her features drawn, and with uncertain gait, more like an old woman than the young girl who was just now so bright with health and so fresh with beauty.

Let us discreetly draw the veil over the first night of the nuptial celebration, when the passion and intoxication of youth and love have held full and unrestrained sway. The debt of this night is paid up by an overwhelming fatigue on the morrow, and the days of tempest are followed by days of exhaustion and wreck. Such is the honeymoon.

Alas! nothing good can come out of such a regime. Statistics show that the first three months of marriage life are sterile. With the exception of the few cases to the contrary, which prove the rule, exceptions which arise from temperance of the reason, or from frigidity of temperament, or from deception, children are seldom borne, except in periods of repose, after the marriage fugue has been played.

But this tempestuous period is not always passed with impunity by the female whose organs are not prepared, like those of men, for the training of love. Lacerations result;

the narrow passage has been forced, violated, and contused; the uterine neck has been poked and punched, beaten and deformed; there has been no respite, no moderation, no prudence. Soon the young woman takes to her bed, smitten with slow fever and chills. The physician is not called, as the sickness is supposed to be the legitimate and natural outcome of probable pregnancy. Then shame prompting, the facts are kept secret, while metritis is establishing itself with its omnipresent retinue, to have and to hold. At last inflammation, congestions, exfoliation, and morbid secretions alarm

the patient, and the physician is called only to find metritis, with all its gloomy and fatal consequences, in the place of the expected maternity. The mold is deformed, the neck tumified, the canal obliterated, and the mucous lining modified by catarrh.

Happy are those who have but slight metritis, for this disease is not beyond the resources of medical art: it can be conquered by care and not compromise prospective maternity. But the organ is no longer a virgin uterus, so apt to reproduce its kind, such an one as we are astonished to see get out of bed without conceiving, so

apt is nature to reproduce herself, and so many the precautions taken by her to insure reproduction.

Every injured uterus, however slight the amount of injury, is damaged as an organ of maternity, and however great our care, its aptitude for procreation is lessened, if not annulled.

Less fortunate are those who, having had more severe forms of metritis, have the greatest possibility of remaining sterile during the balance of a life spent in acute suffering, following the fateful abuse of the period known as the honeymoon, but more aptly called the April moon (lune rousse), full

of showers which do not, however, bring May-flowers.

We might say, under the form of an aphorism, that the sterility of a woman is in direct proportion to the acts and deeds of the first fifteen days of marriage.



VII.

Abortion.

THE old saying states that one abortion leads to another. It should say that one abortion forbids the possibility of another.

Abortion indicates that conception is possible; the husband and wife each have an aptitude for procreation. What has been done once can be done again, and by proper precaution, conception can be brought to its perfect end.

In practice we find three dispositions to miscarriage. First,

it may be the fault of the wife; second, the fault of the husband; third, the fault of both.

In the first case the soil is poor, the uterus is diseased, the ovule cannot be fixed therein. There is or has been an endometritis, and if the constitution is not modified, there is an equal chance that all ensuing conceptions will abort as at first. This first abortion is a fatal portent, for it indicates, to use a figure of speech, that the setting hen breaks the eggs.

In the case of the husband, his constitution may be too delicate, the spermatozoid may lack vitality, or the semen may be altered by a diathesis, and the

part which he plays in procreation comes to naught; the ovule dies and disappears in a false conception. Here again abortion is a bad sign for the future.

In the third case, each may have the types of the former two cases; each may be sick at the time, which necessarily endangers the success of the future, but the most commonly occurring cause, one met daily, is that in which the husband and wife indulge so lavishly that each suffers from marital excess.

Every female refuses the advances of the male when impregnated, since uterine rest is necessary for the normal and perfect evolution of the ovule.

Man and woman are exceptions to the general law of instinct. They indulge in sexual inebriety which would make a gray parrot turn red, and these birds do not pass precisely for types of chastity.

Under the pretext of supplying a forgotten ear or a missing foot they spoil the work already done, which promised a perfect result if it had been let alone. Countless infants perish, as the outcome of too much zeal on the part of the husband.

Let us consider what happens in the uterus during and following abortion. When a woman becomes enceinte, the mucous membrane of the uterus (a de-

ciduous membrane, so-called for the following fact) progressively detaches itself from the tissue with which it is intimately connected, forming a protective envelope for the ovule, but not completing its detachment in a day, or a few days, but only at the moment of complete gestation. Therefore, if the ovule is expelled at six months, or in two months, the probability is great that the envelope will remain, in part, attached to the uterus, and thus set up inflammation and putrefaction, which cause septic lesions of the uterus, and through it of the general health.

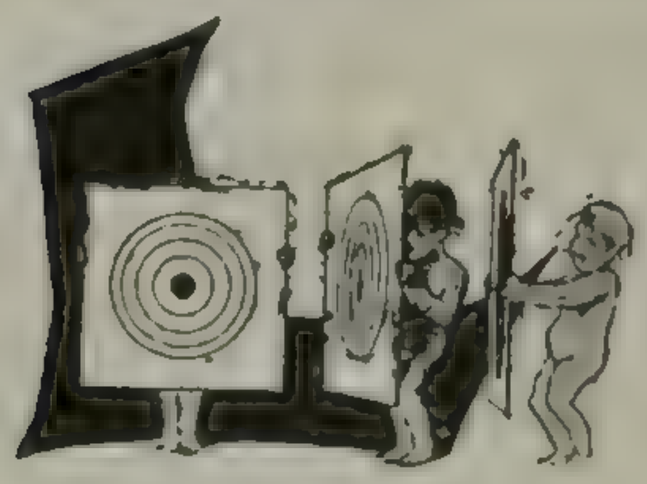
Abortion, then, is not a favorable accident, nor does it speak

well for future conception or gestation. As it is severe, so is it dangerous to future pregnancy. Consequently, we often have patients who say, "Before abortion my health was excellent, but since then I have vague, inexplicable, ill feelings, and above all, that which troubles me most is that I cannot become enceinte."

In reality, every abortion seriously affects the general health of woman. Even if the general malaise is relieved, the uterine health is very often compromised, and as nothing can be engrafted upon a diseased or altered surface, sterility logically results.

VIII.

Uterine Deviations.



ET any one aim at a target, full face, and he stands some chance of hitting it a few times, if not every time; when it is only three-quarters face, the chance is less, and when it is profile, the chances are nil.

It does not need the skill of a geometrician to understand this. One may rectify the aim, change the firing position, and

yet rarely put a shot in the center, and if he does, it will ricochet, and therefore not count, or at any rate, not penetrate.

However, uterine deviations, whatever their name, are like the target, and it is not necessary to employ a gun to hit this target. We ought to attend to uterine orthopedy instead, and not reckon on time or a miracle, the latter not being in the order of the day.

Whether it is retroversion, or anteversion, or lateroversion, there is always a misplaced organ which must be righted to ensure the functions intended by nature. To expect it to replace itself, by its own efforts,

is to expect the down-turned glass to turn right side up of itself. More, the organ misplaced does not regain its place, because it has lost its place, for every vacant space is filled quickly by adaptation, and one organ immediately takes the place vacated by another, although the transition and transposition may occur slowly. It is like the game of "Puss in the Corner." The intestine, the rectum, and the bladder are neighbors, and the least deviation is rendered permanent by the ease with which the one takes the place of the other. To replace the uterus it is necessary to overcome the weight of the

organ, and in addition force back the visceral mass which has taken its place, so that with the best appliances this is not always gentle or easy.

Version is not the worst phase of deviation, in view of sterility, for the aim being determined, the spermatozoid may, by deflection, insinuate itself obliquely in the neck and arrive at the terminus by a devious route. Flexion is of more evil portent, but whether it is anterior or posterior, is of slight importance; the uterus is folded upon the neck at a variable angle, as the case may be, like a rubber tube, which will, as we know by experience, not allow the passage of

fluids or even gases, much less a spermatozoid.

Such a flexion of the uterus implies unquestioned sterility. In spite of this flexion, the menses "show" all right, and pass by the same route as that laid out by nature for the spermatozoid, but in the former case, the passage is from within outwards, and is aided by the contractions and pressure of the organ; while the energy of the spermatozoid cannot force the obstacle offered by the uterine neck, but wastes its forces and dies without victory.

IX.

Mechanical Obstacles.



EVEN the worst uterine deviation is insignificant compared with pathological lesions and obstacles against which the spermatozoid is powerless. These are granulations of the neck, polypus of the neck and uterine body, fibromata, fibro-myomata, and, in a word, all lesions preventing the entrance of the spermatozoid

—lesions which are numerous. The aid of the surgeon is necessary to remove these foreign bodies from the genital passages acting as tampons, but these operations are easy with the numerous appliances available.

But there is a mechanical obstacle, more frequent than any other, atresia of the neck, which occurs in different forms, and which should be arrested at once without loss of time.

Atresia, stricture, or narrowing of the uterine neck, may be congenital or acquired; when it is congenital, permanent dilatation is sufficient to cure it: when it is acquired, suppression of inflammation is first necessary,

to be followed by dilatation. The methods of performing this operation will be described in the chapter on treatment.

Atresia may involve the whole extent of the neck, or it may be at one or both extremities, as shown in the diagram.



Figure 1 represents a normal neck, permeable throughout its whole extent. Figure 2 is a strictured neck, disposing to dysmenorrhœa. Figure 3 shows atresia of the outer mouth.

Figure 4 shows atresia of the internal mouth, while figure 5 shows atresia of both mouths.

In these diagrams the passage of the neck is represented by a visible opening, but in reality these openings do not exist, the neck being endowed with a marked contractile power, often spasmodic, preventing any object passing through the strictured rings except by physical force, and even then often with difficulty. At each extremity we also find a sort of sphincter, or constricting muscle, which, as it were, hermetically seals the passage. Thus we can estimate the role that atresia plays in sterility.

In order to overcome these strictures, we must not only dilate the stricture progressively, but we must, by forcible dilatation, overcome the spasm of the sphincters, as is done in anal stricture; or prescribe anti-spasmodics, as the rigidity of the organ is due to local or nervous factors.

This atresia is more frequent in women who have borne one or more children than in virgins; the external orifice becomes fibrous and the mouth almost occluded, the neck is almost solid, polished like mother of pearl, and it is doubtful if it admits the point of the finest knitting needle. The work of

reparation has been so complete that all former rents and tears have been effaced, and there remains a tough, inelastic, and rigid cicatricial tissue after accouchement. In such cases even forcible dilatation is ineffective, for within eight days after, nature will have counteracted the good by over-zealous reparation. This cicatricial atresia evidently must be treated otherwise, if fertility is desired.

X.

Mechanical Sterility in Man.

WHILE man has a less complicated genital apparatus, he is no less susceptible to alterations of a grave character, so that his relations to the female are inefficacious and his chance of recovering his lost power becomes slight.

While metritis is the great evil in woman, orchitis is the corresponding lesion in man, fraught with as great evil.

To induce complete sterility, however, it is necessary that

orchitis should be double, that is to say, it should involve both testicles at one time, or consecutively. Blennorrhagia should be double, or should occur at two separate times.

We have already considered the length of the epididymic canal and its narrowness. Orchitis occurring in this canal, it is easily seen how inflammation may pass on to adhesion, and effectually close the passage from the testicle to the seminal vesicle, which is the natural reservoir of the sperm waiting its natural purpose. Such a barrier, once raised, is impassable.

Hence, sterility without recourse may ensue and plunge

the man into deep despair. It is rare (in France alone ?) that a youth reaches manhood without incurring blennorrhagia, or, as it is known in colloquial English, the "Clapp." This necessarily contracts the genital roads along which the spermatozoid passes. The disease, in and of itself, is nothing, being characterized by a more or less painful secretion, the duration of which varies with the virulence of the contagious element and disposition of the patient.

Nine times out of ten blennorrhagia, in man, passes without leaving any traces, and it is thought of only as a minor transgression. In reality blennor-

rhagia leaves no constitutional traces, yet it predisposes the victim to another attack on the slightest provocation. On the contrary, it may pass to a chronic state, and an acute one at that, as we see in lymphatic subjects. From this a frightful evil results, for the sufferer contaminates whatever he touches, however slight, and however numerous his loves.

While, therefore, blennorrhagia is not a severe disease, it may cause sterility. We have not spoken of its various phases. Every man (?) knows them, but it is important to know that orchitis is almost the only cause of sterility in man.

XI.

Orchitis.



P to a certain time a young man is without genital trouble, but suddenly he contracts a blennorrhagia, vulgarly called the "clapp" (or as the French aptly say, "chaude pisse," "hot piss"). The vic-

tim naturally becomes alarmed and consults his friends, then the druggist, and finally the physician who advertises this specialty, whose address is to be found in the daily papers, and whose qualifications are on a par with his own mouth-piece. He throws care to the devil, goes to work with a vengeance, stops the secretion in a day or two, and is satisfied.

Soon after the patient feels a slight pain in the testicle, which prompts a little more care but does not take him from business. He is happy to relieve the secretions. In the evening he feels more fatigued and is nervous at night, the testicle be-

comes more painful, swells and becomes red, and then orchitis is established. He takes to his bed for the first time, consults his regular physician, who recommends baths, emollients and derivatives. This state lasts from eight to nine days, with fever and



abatements, and suddenly the scene changes, the testicle looses its swelling and passes through all the phases of a happy termination, but has lost its functions forever,

and has no further use in procreative power.

At other times matters do not happen thus. The testicle primarily affected seems to get better, but in doing so it transmits a part of its inflammation to the other, and while the first is cured the neighbor gets worse; the morbid process runs its course, and after eight days or so the disease seems happily cured, and the patient, so to speak, claps his hands. But is there a cure? Certainly yes, if symptoms are considered; certainly no, if fertility is considered. He is a eunuch, if his possibilities are questioned, for while he may have victims of

his lust, he can never have children of his desire. As a procreative man, he is not to be feared by young girls who do not desire children.

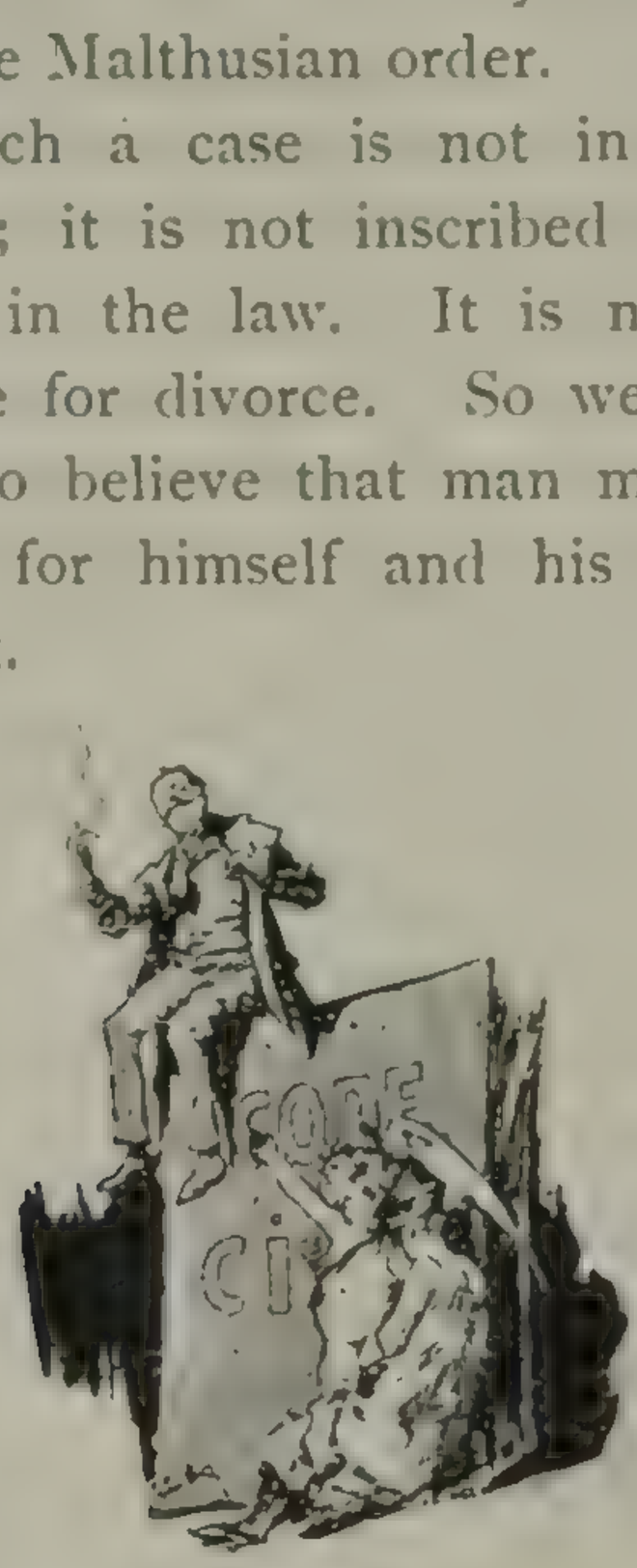
Before marriage we may demand a certificate of vaccination, but never a certificate of potency, so that as one in ten may be said to be the equivalent of a castrated being, so one in ten of newly-made wives may be said to be deceived.

But at the present time these counter checks of nature may rest easy, as they recognize their value as inoffensive consolators of the genital passion.

Thus, many a girl marries a man under the vestures of a

man, and finds him only a monk of the Malthusian order.

Such a case is not in the code; it is not inscribed as a vice in the law. It is not a cause for divorce. So we are led to believe that man makes laws for himself and his own profit.



XII.

Other Accidents Productive of Sterility in Man.

WHILE man may acquire orchitis and consequent sterility, there are other causes over which he has no control, such as cryptorchiditis. Here he is a victim of chance.

The most frequent of these is complete absence of testicles, but they may fail in the descent and remain in the abdomen, arrested in development or descent, existing not at all or being retained within the abdominal cavity.

In such cases, sterility from lack of the testicular element is inevitable, for the organ is flaccid and degenerate without spermatozoids; the rudiments of the organ show only the intention without the completion.

A single testicle may survive and descend into the scrotum, and this single testicle may answer its purpose, but, as a rule, it is disproportionately developed, and yet has no consolation in offspring; for this monorchidic testicle, although massive, is, as a rule, barren, promising great things from its volume, and accomplishing little.

At other times the testicles descend perfectly, but remain so

small and rudimentary that they are worth nothing. They are atrophied, and while they may serve as architectural ornaments, they have no constructive value.

Finally, there may be found testicles, apparently normal, of perfect size, yet deprived of their functions; the genital epithelium has lost its rights and cannot manufacture spermatozoids; it has defensive weapons against public scandal, but not offensive weapons against the feminine public. The ornamentation is well worked out, but the result only deceives the eye and has no real value.

Another class of cripples, genitally speaking, is that of those

afflicted with hypospadias, the continuity of the urinary canal being broken, and who urinate in an abnormal manner. The opening may be near the end of the penis, or between the testicles, but in either case these unfortunates must squat like a woman when they urinate, or if they dare to enter a public urinal they must use a rubber conductor to carry off the urine. This makeshift fulfills this purpose sufficiently well,



but it is not accommodating enough to fill the conjugal requirements.

This hypospadias is, as a rule, the result of an aberration of nature. It has been called the hare-lip of the penis, and, like this affection, is congenital. Still it may be acquired by accident or injury. One does not show his teeth, it is true, and appear on the grin all the time, but he wets his boots, which amounts to the same thing.

These malformations are frequent as congenital lesions, and yet may be acquired. Such a simple thing as a boil along the tract of the urinary passage may lead to an interesting, if not

comfortable, perforation of the cellular tissue, and when a fistula is once established, look out for danger!

Other malformations which may cause sterility in the male are so infrequent and so repugnant, that it is not essential or pleasant to treat of them here. We refer to treatises on teratology for further information, simply stating that in the point of view of sterility they are incurable.



Part IV.

CONSTITUTIONAL STERILITY.



I.

Temperaments.



ITTLE can be said, with certainty, of a body which consists of thirty-four different tissues, each having its own peculiar properties and varying in itself without limit of combination.

It is like a combination lock with thirty-four dials, each lettered with numerous figures, each corresponding to a molecule of the body. The number of combinations in such a lock

is incalculable, and more in number than the sands of the sea.

From this analogy we can conceive the diversity of individuals — the difference in nature which is the consequence of such a multiplicity of temperaments, such a variability of constitutions, such a diversity of characters.

As in the forest we find no two leaves alike, so in man we find that there exist no two individuals exactly alike: each has a difference, due to his or her atomic composition.

Personality is a sum total of figures representing the molecular equivalents. Tempera-

ment is simply a synthesis of elements in groups which make the individual.

The elaboration of the infant is, so to speak, like the composition of a ragout: so much salt, so much pepper, so much spice; in a word, it is a species of cookery.



We speak of temperaments because these are important

elements in this style of cookery of two. Too much spice on the one hand, too little salt on the other, often spoil the pudding. Too hot a fire may burn the roast, and too slow a fire may spoil the sauce. These have their analogy in too ardent temperaments and too indifferent natures. A happy medium is necessary: extremes never produce even average results.

Hysterical women are sterile, and frigid men are impotent. There is a law of opposites which says that "Diversities attract each other, while similarities repel." This is true in nature as in electricity, for two

ardent temperaments never engender anything, neither do indifferent ones. A child cannot come out of a flame or a piece of ice. Good cookery is, as a rule, a question of temperature.

Young people who would have children must have a care that the eggs are fresh and that the oil is of prime quality, if the mayonnaise is to be even passable. These cooks should remember, too, that a third hand may blend the sauce to satisfaction.

So temperature, that is, temperament, has a good deal to do with success, but sometimes it is simply a matter of change of the moon.

II.

Influence of Race.



JOYOUS animals can teach us a lesson in more respects than one. When I was in the country I took lessons from them.

My tastes and inclinations always tended towards the beautiful. I do not like that which is common; I am an artist by temperament. When I cannot

pay the price, I pass by the most beautiful things; but when I buy, I want the best in the house.

I make this confession less from vanity than to point the moral of the following incident:

I bought a pair of beautiful silver plumage pullets with collarettes and tufts of black. The feet were pink and the claws like ivory: in a word, they were fowl of the race of five dollars apiece. I had two beautiful canary birds, too, the admiration of all the neighbors.

It was a bitter mockery of fate. My pullets laid no eggs; my canaries sang no song. I complained to the dealer and

he said, "What would you, sir? You have the feathers; you can't expect the song." I had beautiful fowl, but I ate no eggs. I had the canaries, but they neither sang nor laid eggs. In a word, I feasted my eyes and nothing else.

Now, taught by experience, I have only fowl of ordinary plumage, but they lay eggs. I have now only common yellow canaries, but they sing and raise young. All the hens that don't lay lose their heads;



I keep only "layers," and I have eggs and chickens in abundance and to spare.

Hence it happens that women of high degree and sensitive heart are of the race of fairies, bewitching and passion-inspiring, but not productive. The eggs are like those of beautiful birds, clear as their pretty eyes, but they never hatch.

The descendants of the Crusaders, tracing their ancestors to remote periods, are too distinguished and must be extinguished. Old trees produce nothing but gnarled branches. The trunks are covered with the moss of centuries, and we sum up our analogy by saying that

in the game of love a jack is worth three kings.

Men of genius, too, whose souls are in the clouds, may people the earth with their sublime and grand creations, but they can people it with nothing more material or tangible. Cerebral energy is developed at the expense of genital energy. While the soul's fire lightens the world, the more modest flame of love is extinguished, and goes out in the nothingness of darkness.

The spirit of superior genius cannot multiply, of itself. The human type has no tendency to become better by sudden strokes or leaps. Development must

be gradual, or not at all. Giant trees give so much shade that even saplings cannot grow near them. Destouches, referring to this tendency, says, "All gifts are not given in equal proportion." Great geniuses, however estimable in other respects, cannot reproduce their like.



III.

Limits of Age.



IT is a sure thing that every female, during the menstrual period, may and can have children, for the old adage says, "Every tree that blossoms ought to bear fruit." But every day we see the refutal of this surety. On some old trees the flowers still appear and salute the springtime with their per-

fumed petals, but alas, at the slightest breeze, the flowers wither and fall, leaving no fruit upon the stem. This is the last adieu which the old trees are making, the kiss of the departing, the dying song of the swan.

Woman is in the prime of her vigor from eighteen to thirty years of age. During this period of twelve years she bears her best fruit. Sometimes in the face of winter and its frosts, in spite of winds and and high seas, she brings her fruit safely to maturity. Soon the threads of silver glitter in the fair hair, a sad presage of approaching decline, and at the the same time her aptitude for

maternity diminishes and is extinguished, in spite of the flowers which are still seen as a last witness of her youth which has passed, of her sex which has taken wings and flown away.

Does it follow that after thirty maternity is impossible? Surely not. We see numerous examples where women have borne vigorous children after this age. We might even say that these late fruits are more perfect, more complete, and more mature, and on that account more apt to learn and to comprehend and to assimilate the knowledge of the world.

But this has its limits, which cannot be passed. A child may

be so immaturely aged, so preternaturally wise, that we feel like saluting him in the words of Proudhon, "So young, and already a minister?" Everything should come in its season: late fruits don't keep.

However, sometimes people demand the impossible. A woman, after fifteen years of economy, and after having passed the maternal quarantine, may desire a child. Can we reasonably accept the case? We can at least make a trial. We well know that nature sometimes responds in a remarkable way when properly assisted, but we should take care how we attempt miracles.

The situation is like this: If the woman has passed the age of thirty without becoming a mother, it is due to genital aberrations which oppose maternity. After thirty years these troubles are aggravated by their persistence — they become chronic. Diseases don't mend as they grow older. On the other hand, the aptitude for maternity decreases directly with the age, beyond thirty. The physician then has a double duty to perform: first to mend the first cause; second, to work against the inaptitude, which is greater as the age increases every day. The more pressing the demand, the less time is to be lost. We

see the years sweep by on eagle's wings, and days of delay seem like months to those who hope.

Ought we not to fix an absolute limit of age and write as on the doors of hell, "Leave hope, ye who pass beyond?"

At least, beyond this limit, we ought to prepare against possible and probable failures, the more likely as the age of thirty is passed and the age of forty approached. Beyond this age it is useless to hope, for it is like sowing seed in a dry and barren soil, where it cannot even sprout, much less grow.

On the other hand, there are women of thirty-five who have

preserved all the vigor of possible maternity. These reached puberty at a late age; they have never been fatigued by sexual abuse; they are to all intents and purposes still virgins. The earth, so to speak, has never been tilled: the ovary is still in the height of its vigor. These ought to hope, for this hope will be crowned with fruition.

But, on the other hand, we find more completely "used up" at twenty-five. The escape of the ovules has been in groups; the ovary is dried up and atrophied. They still have youth in their eyes, and the freshness of life in their faces.

We might say that such women have two zones, the one constantly exposed to the burning sun of the tropics, where the maturity of fruit is hastened, while the other zone is in the icy regions, with all the freshness of skin and arrest of maturity which the cold favors.

Such a woman is fifty years old at the waist, and only twenty above. They are done brown on one side and just commenced on the other.

As for man, he has no limit of age. He is always as old as he seems, as far as the genital apparatus is concerned. His external energy is the best criterion of his procreative power.

The less he has strewn his forces to the winds, the more apt he is to perpetuate himself under good conditions and for a long time.

Still, his capability diminishes materially after fifty years, and on this subject the bon mot of Dubois to Napoleon is apropos: Wishing to marry off some of his generals, he said: "Ah, Dubois! can a man at fifty have children? Certainly, sir! And at sixty? Certainly, sir! And at seventy? He can have them always while he lives!"



IV.

Contrasts.



CONTRARIA contrariis curantur. This natural law has its illustration in our likes and dislikes for opposites. We live by contrasts and we die for them.

Every light has its shadow; every color demands its complement; the value of one is due to the other, and the power of

color is as great as the contrast between two tints is the greater.

Brunettes love blondes; the large love the small; the old love the young; wise people love the society of fools; the pretty ones love ugly ones; the fat love the lean; the talkers love the listeners; the strong love the weak; the powerful love the humble, and the wolf loves the sheep.

This reciprocity exists everywhere and in everything, the sheep, perhaps, excepted. Reviewing the whole scale of qualifications, we find that contrast is the best spice of love.

As a result of this law of contrasts, races have but little ten-

dency to depart from the type. If, by crosses, the hand of nature has been forced to make deviations from the type, differing more or less from the original form, she insensibly to us, but none the less persistently, leads back to the original type, the varieties disappearing, gradually taking on the original features.

This is the law of atavism, a law that cannot be broken by argument or infringed by man.

The farther removed the individual from the type, the greater probability of sterility. The very tall man never reproduces himself; the giantess is sterile, and so is the dwarf. For the same reason, every one variant with

the type, either in age, complexion, health, form, or constitution, has the same probability of chances, if he does not seek a contrast.

We love our opposites by natural laws. We instinctively tend toward the regular type of our race by producing a mixed being, thus correcting exaggerations by counter-exaggerations.

A tall man chooses a short woman, that he may equalize the stature. It is instinctive to choose one as much petite and delicate as we are large and strong. This is, so to speak, the affinity of contrasts. Whatever the exaggeration, whether it relates to the color of the hair,

the age, the constitution, or any defect whatsover, we always seek to correct these faults by contrary qualities.

The old man who wishes to reproduce himself selects a young woman, for the semen seems to be awakened in the old only by the touch of young flesh.

We believe that the opposite holds, and that every mature woman only becomes a mother by taking unto herself a young husband. The vigor of the semen overcomes the barren ground in which it is sown.

We do not wish to pose as advocates of such immoral unions, so-called mesalliances ; we present only the fact that there is a

law of contraries, and that when for family reasons, for perpetuation of name or fortune, it is a necessity to have children, this law ought to be known, that the matter may be arranged under the best conditions.



V.

Laws of Reproduction.

THE lower the animal in the scale, the greater the aptitude for reproduction.

In the same species, the greater the poverty in estate, the more productive the individual.

The quantity of the product is in inverse ratio to the quality. The greater the birth-rate of

a country, the less the mean of life.

If in an individual we consider cells alone, we see that the nobler the character, the less prolific will they be.

Cerebral expenditure is equivalent to ten times the expenditure of genital energy.

These laws, which have never been thus formulated, are well known to the world. Statistics clearly show that the poorer a country, the more the population, and the greater the number of emigrants furnished by it. We need only to mention Ireland, Italy, and Germany.

Taking Paris, for illustration, we find three arrondisements,

representing three classes of society, and a natality inversely proportionate to the wealth of the inhabitants of these precincts.

The eighth ward, the rich quarter, has a proportion of one birth to nine marriages.

The tenth ward, the citizens' or middle-class quarter, has four to one.

The eighteenth ward, the poor quarter, has six to five.

Hence, it is proper to conclude that the greater the misery, the greater the populating power.

There are, perhaps, other reasons. They say the rich have no children because they do not wish them, and take every pre-

caution to avoid the possibility, whilst the poor man acts squarely, and has no tricks.

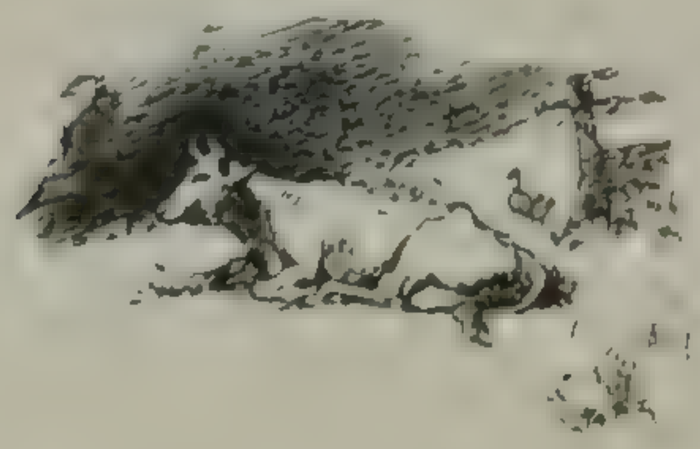
Physicians, however, can prove the contrary. We have seen the frequency of sterility among the rich, and know the efforts which are made to counteract this barrenness. We know, also, that the great number of poor people are Malthusians, and try every means to avoid increase of their family, since it means increased care and work to feed and support them. Yet in spite of all the greatest precautions, they multiply. It is safe to conclude that it is a question of fertile soil. We see florists, by forcing plants, convert stamens and pis-

tils into petals ; the flowers become double, but at the expense of their reproductive powers. To render them fertile, they must be returned to natural soil and surroundings. Then the petals revert to stamens and pistils, which resume their natural functions of reproducing their kind.

In the rich pastures of Normandy, where the cow is fattened to an abnormal extent, she becomes sterile ; the cow who has to grub on barren lands and in dry pastures for her living, on the other hand, is fertile.

The conclusion that the kind and quantity of food has some influence on fertility and sterility is warranted by these facts,

and we ought to give advice to our patients upon this important subject.



VI.

Regime.

NUTRITION and alimentation have no unimportant part in



the human organism, and have a direct effect upon the quality and perfection of the species.

In the green-room, and behind the scenes, we meet and recognize those who have entered by favor, and who are momentarily without their sphere. In spite of their elegant costume and the self-possessed manner which comes from contact with the world, we see, as it were, an atmosphere of character surrounding them, a finesse of flesh and feature, which stamps the gentleman, and distinguishes him from the clown or the shopkeeper.

We might formulate a law:— The building will always be like the building material. You cannot build an edifice stronger or better than the material.

Food is not to be chosen for looks or savor alone; its qualities of resistance and persistence should be looked to. These furnish permanent repairs, and fortify the system against the attacks of time, building up a solid constitution, however fine the lines; giving greater energy, however delicate the form; insuring extended life, however violent the storms which assail the health of the man of the world.

We see that the quantity of production is in inverse ratio to the quality. If the wealthy produce less, they live longer, the mean of life being forty-seven for the rich man, and only thirty for the

poor man. Whence it follows that if the man of the world makes fewer children, he has more chance of conserving his race, for aside from the more resistant character of the material, he has hygienic surroundings and good food, tending to preserve and develop the product.



This is the part of selected food in reproduction : it may diminish the quantity, but it increases the quality and resistance. It follows that, if too rich food is the sole cause of sterility, reform is necessary, in quantity

at least. Abstention, even to hunger, and healthful exercise, will mend the matter. Follow the advice of the celebrated Behier, who told one of his rich clients, "Live on three francs a day, Marquis, and earn them."



If a proof of the influence of food upon reproduction is desired, take a dozen rabbits and put six in one cage and six in another. Feed the first six with oats, bread, bran, potatoes, and herbs of which they are fond; nearly starve the other six. After six months of this regime

the first six will not have multiplied at all, or but slightly, while the latter six will have multiplied until the cage cracks.

The influence of nutrition is simply one of saturation. Put a little salt in a glass of water, and it will dissolve ; put in a large quantity, and the excess will precipitate without dissolving.

Feed a woman to saturation, and she will be without appetite, and without sexual desire. She will be saturated at every point; her system needs no aid, and would not utilize it if offered ; her nature rejects all overtures, by instinct, whatever be the source or method of offering.

If, on the contrary, we take

some unfortunate whose meagre constitution shows itself in every feature, she will absorb everything, like a sponge. Anoint the skin with oil, and it is absorbed; give a nutrient injection, and it is absorbed; give abundant nourishment, and it, too, is absorbed. Everything is available to her starving system, and if in charity a spermatozoid calls to give alms, she welcomes it and takes it in as if it were heavenly manna.

This is the reason why the poverty-stricken, in purse and body, are so prolific; they are always ready to accept an offering, no matter by what way it comes.

VII.

Obesity.



UE consideration of the facts thus far presented shows that, in this case, sterility is synonymous with non-assimilation. The tissues are surfeited, and do not profit from offered food, especially when transported by devious routes hedged against approaches. The economy is too wealthy to profit by alimony.

This non-assimilation is simply a matter of indifference, and by seizing an auspicious moment for the offering the appetite may be roused and then satisfied. The body has crises of desire from which one may profit; thus a slight indisposition may arouse a passionate longing, and so render conception possible. Such cases occur daily where a slight sickness, rendering a limited diet necessary, where there is dis-assimilation as a symptom, has been followed by pregnancy, these two factors being the simple and yet true secrets of passive treatment.

Here, as elsewhere, nature points the way to success. We

must aid and encourage her in this course. True, we cannot with impunity induce disease, but as we know what happens in these cases, we may limit the diet and hasten dis-assimilation, and thus artificially produce these factors.

There is another state more grave than simple surfeit, namely, supersaturation of the system with fat, leading to fatty accumulation or degeneration. Here there is not only a physiological indifference to impressions, but there is a complete inaptitude for assimilation by external action. Fat invades the substance of each organ and tissue, and covers them with an insulating

layer preventing all external action. The ovary is covered with a fatty envelope which toughens it, and weakens or abolishes all its physiological functions. The ovule itself, with its envelopes, is infiltrated with fat, and can no longer invite the entrance of the spermatozoid, while the latter cannot pierce it. It becomes a target, which blunts or throws off all arrows directed against it.

Obesity, then, is an important element in mechanical sterility, for aside from the ovary and ovules, all organs are more or less infiltrated with fat. The genital organs are, as a rule, displaced; the uterus sinks into

the pelvis, and cannot even be seen with an ordinary speculum: we need to use a lamp chimney, if we wish to see it. The husband has a sorry time of it in such a case, for in spite of his good wishes, he can do nothing unless he has far-reaching material arguments. The genital organs are sadly out of relation. Love becomes in the highest degree platonic, and a telephone is necessary to transmit courtesies between man and wife.

Yet obesity is not an absolute bar to conception. I have known of two cases in my own practice where excessively obese patients have conceived and nourished, the one three, the

other five, children. But in truth, we cannot explain how the matter came about. It leads one to think that there are especial graces of accommodation in the apparently impossible.

I do not know whom to compliment the more, the woman who can conceive in such a state, or the man who sows the seed so deeply in such a stubborn soil.





VIII.

Weakness.

ONE of the hybrids of nature ever reproduce themselves. Exaggerated forms and functions are subject to the same rule. Extreme weakness is no exception, although when due to a lack of digestive powers, the aptitude for reproduction may exist, and even be exaggerated. Constitutional weakness, however, which resists all treatment, whether by medicine or regime, is barren.

We speak of those parchment-like beings of both sexes who eat, and drink, and functionate normally, yet all their lives are like a piece of curled-up leather. Upon such natures nothing makes any impression : everything slides off or passes through without leaving any traces.

In such dried-up specimens the results of digestion are figurative to the person; they are not absorbed. Nothing penetrates the membranes, but everything glides through the intestines without entering into the economy. Even those very fluid and subtle elements which perchance filter through the intestinal membranes are consumed

in situ, without profit to the general system. Such creatures live by other laws of assimilation than ordinary mortals; the skin and the lungs acquire other and vicarious functions; the progress of life and the functional activity continues by adaptation, and is not interrupted solely from the kindness of nature. Such lives are monuments to the beneficence of Providence.

Still, these exceptional beings reach a good old age without disease, the system is never clogged by the waste products of dis-assimilation, and the cellular tissues and muscles become dried up, and, like the parchment which they resemble so

much, are as resistant as they are impenetrable.

Reproduction under such conditions is manifestly impossible. The woman has but a slight show — only a few drops of gelatinous blood which scarcely stains the linen. The ovules are, as it were, shut up in a shell which the spermatozoid cannot break open ; to fertilize such an ovule the spermatozoid must be armed with a dagger of steel of the finest temper.

The dried-up man might as well be of the stone age, as far as reproduction is concerned. His semen is reduced to a thick, condensed form, as if it had been evaporated, and the few

spermatozoids which are found therein, in spite of their endeavors, cannot get away from the mass of glue-like fluid which surrounds them. The spermatozoids are, like boats, tied to the river bank: they cannot cross the Rubicon.



IX.

Size.

THE general proportions being considered, we might, with truth, say that large women are delivered with more difficulty than small ones, due in part to a lack of energy in their make-up. We might say that there was a certain sum total of vital energy for each being, and as the levers were lengthened and removed from the centre of action, the power manifested became proportionately less.

The large woman is more apathetic than the smaller woman. She is soft, indifferent, and cold; she awaits the pleasure of Monsieur, she does not invite it. On the other hand, the route from Paris to Versailles is longer than to Batignolles, moreover impregnation always begins as on a race course : the longer the track, the fewer the runners who will be in at the finish.

Here is the analogy : The hippodrome is of greater extent, less accessible, and less attractive ; the course is longer, obstacles are numerous, the ground softer, more slippery, not well marked out, and boggy; a track

upon which, as a whole, the runners are in imminent danger of breaking their necks, or being mired en route.

As for the giantess, she never conceives; the course is beyond conceivable measure. No runner, however vigorous, could ever reach the terminus. A locomotive would be necessary to make the circuit, and even that would need coaling and watering stations.

As for man, he is conversely unfortunate. The surgeon who has been transferred from the light infantry to the heavy artillery will assuredly be astonished when he makes his first inspection. He will have to wipe

his glasses, he will see such a little thing; he will think there is some mystery at first sight, and ask the soldier, "Is that all you can show me?" But as he passes on he will find the same rudimentary organ greatly dis-



proportionate to the bodily size. After inspection he will doubtless formulate the following law: —

The organs of reproduction are inversely proportionate to

the size of the individual. Exceptions to this rule have a large nose.

Is not this a conclusive proof of the utility of contrasts which nature desires? — a large woman mated to a slender man, and vice versa?



X.

Solitary Vices.



ITTLE has been said, in public print, upon the subject of self-abuse. Physicians are fully aware of its wide-spread existence, but (aside from the advice "Don't!") say and do nothing, either to prevent the habit or alleviate its evil results. Hence it is a fertile field for the alarmist and the quack, who through exaggeration of its evils bring many a victim within

the net when the only treatment needed is a little wholesome advice, which costs little, and the firm determination to swear off, which costs much effort and will-power on the part of the victim.

Doubtless the evils of masturbation are greatly overdrawn, and yet they none the less exist, if not as great as portrayed. Such a habit must of necessity modify the sexual organs, constitutionally at least, and it has, therefore, a marked influence in causing irremediable sterility. Being essentially a habit of waste, the reserve supply of sexual energy is early exhausted, without recourse or hope of restoration. The degree of injury

manifestly depends upon the length of its existencc. We may formulate this law: Vices and virtues are like roots: they grow stronger and go deeper the longer their development, and the nearer they begin to birth.

The vice may be contracted early in childhood, learned from, or taught by, comrades, by example or instruction, but it is as often, if not as a rule, due to failure of development of the genitals, or to some disease which engenders the habit autonomously.

A common, simple, and yet potent cause is pruritus, which leads the child to scratch and handle the parts to ease the

intolerable itching. They are agreeably surprised to find that a pleasurable sensation of tickling ensues, and a habit is quickly formed, soon degenerating into a vice, difficult to eradicate, or even to repress.

The removal of the cause is easy; not so with the result. Daily cleansing of the parts with warm water removes the sebaceous material which collects upon the mucous surfaces, and which is often the sole cause.

In young girls the extensive mucous surfaces of the labia and vagina may be, and often are, hyper-secretive, and this excess of secretion irritates the parts to such an extent that at first a

simple inflammation may result, developing later on, if not treated in season, into a purulent inflammation. Not only does this weaken the girl, but the secretion acquires extremely virulent properties. If we examine the pus under the microscope, we shall see a true gonnococcus, a germ, highly contagious, many times more so than the itch mite.

If this purulent vulvitis or vaginitis is not treated at once, it is capable of infecting a whole family, especially when one sponge alone does duty for a whole family, for all the toilet purposes, of all parts, indiscriminately. A sponge for everyone and everyone his own sponge, is

a good parody on the old maxim, for otherwise many an innocent person may assume the appearance and endure the suffering of the guilty.

Purulent inflammation of this character is not only locally dangerous—it is metastatic. Gonorrhœal rheumatism is a well-known and commonly-seen manifestation of this phenomenon, and other unpleasant sequelæ often result, accidental in occurrence, but stubborn in treatment.

Whether the cause of onanism is lack of cleanliness or of self-control, it is fatal to fertility.

The young girl whose menses are established, whose organs are developed, and whose ovula-

tion is completed, who continues the pernicious habit of her childhood, which was then, so to speak, merely an anodyne, is affected more severely as she matures, until her whole being participates in the dangerous nervous excitation and shock, thus compromising her general good health as well. The ovules wither, ovulation is hastened, and the ovary dries up. When this young woman marries, if she does, after several years of such practice, what is left? A withered, empty, and barren ovary, completely unfit for maternity.

For the young man the picture is no less sombre. The

facilities which he has for indulging his propensities, even when closely watched, soon weaken him, the constitution is deeply shaken, and even if the epithelium still manufactures spermatozoids, the special sensibility is weakened, sensation blunted, and general activity enfeebled. Spermatorrhœa is developed, and frigidity ensues.



Married to such a husband, a woman has but a feeble fellow, without energy and hypõcritical, who will perform his marital

duties for a few days, but finding the reality which he has attained far from the dream of his desires, will resume his pernicious and guilty habits, even at his wife's side. She has the evils of the change alone, without the benefits. Then, when the husband, from awakened duty or desire, wishes to become a father, or tó resume his relations with his wife, he finds himself impotent and frigid, doomed forever to disappointment as his lot and punishment.

XI.

Sodom and Lesbos.



IN the search for gratification of his abnormal desires man has resorted to many unnatural means. Sodom and Lesbos have each left the stigma of their abominations in modern times. Aside from their effect upon the social sta-

tus of the individual practicing these vices, they have a direct effect in causing sterility.

The depraved being who participates in sodomy, either actively or passively, has but one thought: to satisfy his shameless passion without incurring the possible chances of the natural laws. Woman, to him, becomes a mere name; she does not exist for him, she has nothing to say that interests him, she is without charms, without savor, without stimulus. Erection being with him simply an affair of the imagination, a mental intoxication, it happens that in the presence of the most charming and attractive woman

he remains in a state of frigidity.



These miserable genito-neurasthenics are smitten with such a sexual aberration that even if they should marry they will be sterile, for whatever the value of the semen may be, if they approach their wives they cannot finish the act, since the reality cools their ardor and smothers

the fire of their passions. Recollections of their dreams and masculine orgies alone can lead to complete erection. This is a fortunate circumstance, for it prevents the perpetuation of such monsters of iniquity.

Two other neuroses enter into the question of sterility; namely, priaprism and satyriasis.

Priaprism is nothing but an eternal state of erection, painful and weakening, caused by worms, cystitis, or perhaps pruritus. Sometimes it is due to vesical calculus or to diseases of the prostrate. The remarkable factor in these cases is that the unfortunate has no desire for intercourse. On the con-

trary, he has an aversion to it, as it is painful, difficult, and enervating. If he indulges, he cannot consummate the act; there is no venereal spasm, and he is consequently sterile.

Satyriasis is a different thing; there are constant desires which remain unsatisfied, no matter how many the acts of intercourse may be. He is never fatigued by them, never loses his physical strength or health, and kills three or four legitimate wives, to say nothing of the wives and maids of his neighbors. He is a veritable Bluebeard; he destroys, but he never creates.

The Lesbian is no less culpable, but she is more excusable.

If the young girl cannot maintain chastity, she at least ought to observe wisdom until marriage. Every transgression is fraught with the possible chances of hypothecation. She should at least bargain with Cupid that he tempt her not too far, and that he do not compromise her for the future.

Unfortunately, Cupid sometimes fails in his promises; he poisons his arrows with a rose which cannot be found in any garden, and wounds result which are fatal to the reputation of the young girl, if she wishes a legitimate affiancement.

To obviate these dangers the young girl is forbidden to rove



in the garden with Cupids of her own age but of opposite sex, and so must dream of secret bowers in the garden of love.

Is she a blonde? She voluntarily chooses as companion some brunette who recalls the stronger sex. Is she a brunette? She selects a female friend whose blond hair and face represent the graces of the opposite sex. First they embrace with innocent caresses, then they kiss each other with ardent raptures that thrill to the marrow, and if,

perchance, these two friends occupy the same bed, they soon call forth in each other the most voluptuous feelings and actual sexual satisfaction. Thus the habit of Lesbianism is established in full.



A remarkable fact, and a dangerous one too, is, that these transports between Lesbians develop such a degree of voluptuousness that when they marry they rarely experience the intoxicating sensations that

they do as young girls. Disappointments and disillusions therefore ensue which invariably react to the disadvantage of the husband. The story of "Mlle. Giraud, Ma Femme," is not a dream of the novelist; it is a beautiful and realistic description of that which is too often found in flesh and blood.

With such disordered passions the woman is soon barren, as far as ovulation is concerned, for if she marries under such conditions, it is not the husband who determines ovulation, it is the female friend.

Part V.

TREATMENT OF STERILITY.



I.

General State of Health.



ITTLE danger is to be feared even from the most fearful diseases, the general state of the system having but little effect upon fertility or sterility.

Every day we see cases where consumptives produce children even when the disease is in its last stages, and even when both partners in marriage are affected. It is the same with all other gen-

eral diseases; only localized lesions of the uterus or its appendages in the female and of the testicle or appendages in the male have any part in sterility..

However, as the child is the joint product of two factors, it stands to reason that it should partake of the qualities, good or bad, of these two factors. It follows accordingly that if a sick man or woman aids in creating a child, it will be tainted with each, and every morbid germ be thus transmitted by the factor.

As the vitality of an infant is in direct proportion to his vital force, the prospects of living depend directly upon the constitution. If, therefore, the child

is to live, the parents must guarantee him against death, as far as may be in their power, by transmitting to him the greatest amount of resistance and the least amount of disease. The parents, therefore, must at the moment of conception be at the prime of vigor.

Each case must be investigated to see if at any one period the health is better than at others. If this is so, therapeutic means, hygiene as well as drugs, must be used to maintain the state of health in the best possible form.

Yet, generally speaking, the stout woman should restrain her appetite, open the bowels by the

use of sulphate of soda or castor oil, exercise in the open air, and take, as a medicine, a grain of iodide of potash at each meal, dissolved in water, and use a little sour wine, if desired. This regime may be followed with benefit for several months, if there is sterility, but if pregnant, the woman should go to term as she is, and then nurse the child.

II.

Irregular Menstruation.



WOMEN, like watches, ought not to gain or lose time from period to period. Every poorly-regulated watch is taken to the watchmaker for repairs, and every irregular woman should go to the physician for repairs, as well as to learn

something to her advantage. Some women have what may be called two periods every month, one slight, one more marked; others anticipate the time by several days, while others delay and run over the allotted twenty-eight days. Some flow very freely and have more or less show during the greater part of the month, while others flow but little; others have a true hemorrhage. Some are chronically unwell, an affection which in connection with other uterine troubles is often congenital—"like mother, like daughter."

All of these disorders come within the province of the phy-

sician, whose first duty is to ascertain whether they are due to local or constitutional causes.

We do not wish to encroach upon the rights of the family physician nor to write a book for each case, as would be necessary, if we were to treat each in detail. We therefore mention only three types of irregularity which are most common in causing sterility.

These are: First, dysmenorrhœa, or painful menstruation. Second, periods preceded by a crisis. Third, intermittent menstruation.

Dysmenorrhœa is very common in young girls, and threatens sterility, although every al-

leviation gives the patient cause to hope, if she desires children. Marriage, contrary to the general belief, does not lessen the sterilizing effect of these lesions, unless they are due to an imperforate hymen.

Dysmenorrhœa may be neuralgic, congestive, or mechanical, special treatment being necessary in each case, the cure being difficult in all cases according as there is a constitutional predisposition.

In the second case, menstruation is always preceded by painful malaise, a feeling of general uneasiness which may occur eight days, or less, before the time, and is characterized by



weight and oppression in the lower parts, pain in the back, uneasiness and fulness of the uterus, a tired feeling in the legs, headache and general bodily fatigue and enervation, false symptoms, analogous to miscarriage pains and those of peritonitis or pelvi-metritis. These symptoms are followed by the menses, in due course, which may be more or less normal, and possibly occur without pain.

This is especially destrucitve to fertility, since the crisis de-

stroys the ovule, and causes its premature discharge.

In such cases, sulphate of quinine is indispensable, ten grains or so the day previous, with a small amount of aconitia, aided by hydrate of chloral or bromide of potash, to quiet the crisis.

In the third case, where the periods are intermittent, they may appear normally and then suddenly cease, to reappear in twenty-four or forty-eight hours, there being a colorless, serous flow during the interval.

In this case, mustard foot baths externally and capsules of apioline (not apiol) internally, when there is evidence or indi-

cation of impending cessation, may stimulate uterine congestion, so that it will continue uninterrupted; but under any circumstances the ovule will probably be a "dead loss." Treatment of this irregularity during the intervals is futile. When there is catarrh during the intervals, iodide of iron is indicated.

All of these local difficulties obstinately resist treatment. As a rule there is a predisposition, and sudden suppression of the lesion often entails more serious injury than the inconvenience itself. The physician, therefore, must be on his guard, and act with prudence, tact, and discretion.

III.

Amenorrhoea.



HERE are two types of amenorrhœa or absence of the menses. The first is the congenital type, the organs being rudimentary, imperfectly formed, or completely absent. Thus a woman may be found without uterus or ovaries, and yet no external evidence would lead us to suspect their absence. She may perhaps be slightly masculine in her manners, have a voice a little lower than natural to woman, have her breasts but

slightly developed, and perhaps have a suspicion of hair on the upper lip, a downy moustache. Still, all women who have a moustache, slight or pronounced, do not necessarily have deformities, but they do as a rule have some uterine lesion, and are sterile.

We sometimes find women having ovaries but devoid of a perfect uterus, there being instead only a fleshy nucleus, but the contrary never exists; the uterus is always supplemented by ovaries, in the beginning, although these may become atrophied or degenerate, always being dependant, however, upon the uterus.

Naturally, the organs being absent, the functions will be absent. In the former case cited the menses are simbly an ovarian fluxion, since the uterus cannot add its part. Hence, as the uterus furnishes only blood, it follows that, this being absent, no blood escapes, so that the menstrual epochs are marked only by the preliminary malaise attending ovulation, without any supplementary, sanguinous flow. Nature, however, arranges for these aberrations, and provides for the case so that no reaction is felt upon the general health other than the natural malaise of ovulation.

In other cases we find a nor-

mal uterus and ovaries, but the Fallopian tubes, connecting the two, are solid or impermeable. In such a case the menstrual tendency is manifested by soreness of the bowels, pain in the hypogastrium, feelings of weight in the pelvis, and darting, heavy pains in the limbs, but in spite of this molimen the menses are never established, and the woman is always sterile.

Little can be done in such a congenital amenorrhœa; the symptoms may be alleviated, but the result remains.

The second type of amenorrhœa is entirely functional; the organs exist in all their perfection, only the functions are ab-

sent or not fully developed. Thus the menses may not have been established at puberty, or they may have appeared and later been repressed.

Three forms of this complication may occur, namely:

1. A girl of fifteen or sixteen years may present herself, in apparently good health constitutionally, well developed externally, the breasts full, plump, and round, and the pubis well-covered with hair, and yet the menses have not appeared.

If the general health is good, this is merely one of the "stage halts" in the play of nature; it is simply retarded menstruation, that is all. While the exterior is

pleasing, and the girl has all the visible attributes of a woman, her internal development may not have passed the stage of childhood as indicated by her voice and character.

If, on the other hand, external perfection is accompanied by poor health, and the periods are especially marked by malaise, or even more serious troubles, then the physician should interfere to assist nature. Treatment varies with the case. Gymnastics, hydrotherapy, and massage are always indicated. In addition, leeches may be applied to the abdomen, to the neck of the uterus, to the vulva, and to the thighs, on the inside ;

bitter tonics, quinine and the like to be given internally. If the menses show as a serous, bloodless flow or menstrual leucorrhœa, iron and arsenic are indicated.

2. The menses may be established at the proper time and in proper form, and suddenly cease, suppressed by moral emotions or physical impressions. The treatment here indicated is evidently a removal of the cause.

Vivid emotions, as great joy or grief, may induce these disorders, and it is necessary, therefore, to remove these causes, if they are amenable to suggestion, and to relieve the effects by anti-spasmodics, valerian, bromides,

ether, electricity, galvanism magnetism, massage, and friction.

When sudden arrest is due to a cold, the following symptoms will indicate this cause: namely, fever, hot and dry skin, frequent pulse, great thirst, nausea, congestive headache, and hysterical crises.

The treatment here indicated is the use of hot foot baths, with mustard; hot fomentations to the abdomen and mons veneris; hot aromatic drinks; purgatives; aloes and myrrh, and uterine stimulants, apioline, apiol, strychnine, etc. To overcome uterine rigidity, exciting uterine injections or local applications

to the os of iodine or ammonia are indicated.

If sudden suppression is due to the inception of an acute disease, this disease must be recognized and treated, care being taken not to confound effect and cause.

Still another type of suppression is due to mental disturbance, a form which might aptly be called "psychic amenorrhœa." This is the least dangerous to the body, if not to the mind. Thus, a young girl who loves her lover with body and soul, may, after the first surrender to her love's desires and promptings, be stricken with remorse and a fear that she is pregnant,

and, by her mental dread and terror, so act upon the constitution that the menses may be temporarily suppressed, although she is not in reality pregnant.

On the contrary, a young wife, earnestly desirous of maternity, may absolutely deceive herself into believing that she is pregnant, and thus induce a suppression of the menses, apparently confirming the truth of this belief, when in reality it is a false hope. Numerous cases of such form of psychic amenorrhœa present themselves to the specialist, and often to the general practitioner.

3. Amenorrhœa may be progressive. In such cases a young

girl may have been regular up to a certain time; menstruation may have occurred normally during a term of years, when suddenly she notices a perceptible diminution, and finally a total suppression, of the flow.

This is the most dangerous form of all, for it indicates an alarming constitutional disorder, and may portend phthisis, sometimes in an advanced stage.

These cases must have a suitable dietetic treatment, and every means possible should be brought to bear upon the constitutional evil. Reappearance of the menses is a favorable sign, but does not preclude the necessity of a continued, close,

and unceasing watch over the sleeping enemy, for often the cessation of hostilities, the showing of this red flag of truce, is simply a subterfuge to gain time for reinforcements to arrive, and to make a new attack.

IV.

Leucorrhoea.



NINE women out of ten, especially in cities, have leucorrhœa; the quantity varies with the subject, and each of the nine women thus affected may be as sound constitutionally and functionally as the other one. A woman affected with leucorrhœa may become pregnant, especially if the fluid secreted is limpid and non-acrid; on the other hand,

the secretion is often intermittent.

In many cases this leucorrhœal flow relieves the patient, showing that there is a constitutional trouble to be attended to, and that if this is relieved, the flow will at length cease with the relief of the cause. To hasten this cessation by local means is to close the flood gates upon a stream which is poisoning the life current.

Day after day we see women demanding a cure for the whites. If we acquiesce in this desire, after exhausting the list of excellent reasons in favor of their conservation, we shall soon have these patients complaining of

ringing in the ears, vertigo, cramps in the stomach, neuralgia, rheumatic pains, etc., symptoms which disappear with the whites, a fact which conclusively convinces the woman that the leucorrhœa is salutary and beneficial, a measure of her good health.

This experience should teach the physician that he should be careful how he attacks a long-existing, and, so to speak, constitutional, leucorrhœa; he should modify the organism and tone up the system, before instituting local treatment.

General treatment varies according to the diathesis causing the trouble. Iodide of iron,

arsenic, alkalines, terebenthine, balsams, resins, and tonics are indicated in special cases. The physician has the means for a cure, but his treatment must be supplemented by an allowance of time for action. The cure cannot be completed in a day.

For local treatment nothing equals an intra-vaginal injection of iodine, two or three injections being usually sufficient to check the secretion. To test the tolerance of the uterus, a weak solution may first be used, but, as a rule, the pure tincture may be used without danger, if freshly made with alcohol.

It should be generally known that tincture of iodine more than

eight days old becomes caustic from the development of iodic acid, which increases in quantity with age. Moreover, some unscrupulous pharmacists use cheap alcohol, or wood spirit, so that the physician, to avoid unpleasant, if not painful and long-continued, complications, should prepare his own tincture of iodine at the moment of use.

The injection of iodine (5 to 6 grammes) should be made at intervals of eight days, and it is rare that the leucorrhœa does not cease after the second or third application.

These injections should be made only by the physician, and the patient should not leave the

office for at least two hours after the injection. It is far preferable to perform this minor operation at the home of the patient, and to remain there until the crisis is over.



In addition, the woman herself should daily inject a weak solution of permanganate of

potash or of resorcine, a teacupful in a quart of water, since the private toilet has no unimportant part in the health of the genital organs.

V.

Ulcerations and Congestions of the Uterine Neck.



ONE is astonished as he studies uterine lesions, at their frequency and ever-increasing quantity. They may exist and pass unnoticed, since there is no means of discovering them, for a certainty, except by the speculum. Many a woman dies under the rubric of an ill-defined disease, when the cause is in reality uterine.

Earlier in this book we have called attention to three factors to which woman, alone, of all females, is subject; namely, menstruation, the upright position, and the conjugal regime, each and all reacting upon the constitutional health and functional activity. The deplorable effects have also been noticed in preceding chapters, and here the treatment alone concerns us.

If we should take ten passing women, at hap-hazard, and make an examination, six out of the ten at least would need treatment. More than this, of ten women complaining of malaise, neuralgia, gastritis, cephalgia, etc., ten would remain for uter-

ine treatment, for all these troubles often have but one cause, an uterine congestion.

Upon examination with a speculum, we usually find in place of a healthy neck, of normal color and volume, one having an orifice inflamed, soft, and ulcerated, to a greater or less extent ; the form is distorted — not round and conical, but hypertrophied or club-shaped, while the tissue has the unhealthy tint of inflammation.

The neck may alone be affected, by the repeated shock to which it has been subjected, but in the majority of cases it is only an external manifestation of a lesion more deeply seated

and involving the whole uterus, which therefore needs treatment.

Cauterization of the neck, indicated in ulceration, is best made with fuming nitric acid, quickly applied, and followed by a copious douche. This should be repeated twice in a week, to be at all efficacious.

For redness and simple ulceration,counter-irritation with tincture of iodine is sufficient.

As an irrigating fluid, one gramme of permanganate of potash in a litre of water is indicated, this solution being thoroughly antiseptic and cleansing.

Nitrate of silver, as an uterine caustic, is badly endured, and

often determines local hemorrhage. Its use is therefore to be condemned. Chemically pure nitric acid, or tincture of iodine, will answer all indications in the majority of cases, although acid nitrate of mercury, or the hot iron may be necessary as a last resort.

Passive engorgements of the neck are easily controlled by tampons, saturated with glycerine and aloes. When worn twelve hours or so, these induce an abundant secretion, thus relieving the congestion. It is, so to speak, our "uterine purgative."

Even local emollient douches, administered with a syringe and

vaginal tube, may be of benefit.

In a word, uterine therapeusis has made such progress within the past years that we confidently hope and expect to cure all cases presenting, cancer alone being excepted. Even cancer may be removed by hysterectomy, but this takes it out of the chapter, and out of the book.

VI.

Metritis.

LET us bear in mind the grand, typical lesion most commonly met with, and the most common cause of sterility. Such is metritis. The common causes of this lesion have already been enumerated, and it is not necessary to review them.

The best treatment is uterine rest, for without rest all therapeusis fails, whatever the character, while by rest alone many long-standing, chronic cases of

metritis cure themselves, so to speak, after resisting other treatment, well-conceived and logically planned.

True, metritis has its degrees, and we can speak only in a general way, leaving special types and cases for the specialist, who can apply the appropriate treatment in each case.

Generally speaking, the treatment indicated is genital repose, cataplasms within and without, baths, both local and general, uterine purgatives, and cauterization or curetting of the uterine cavity, when the more simple methods are not sufficient. Such a sensitive organ as the uterus should be treated with

the greatest prudence, yet, on the other hand, when active interference is deemed indispensable, it should be instituted with the greatest firmness, since half measures are inefficacious or completely illusory.

In all cases the local and general treatment will be more efficacious if aided by a rational attention to the general health. Just as the soil that is carefully worked before sowing the seed is more productive, so it is that the cultivation of general principles of medicine always leads to excellent results.

Pedicures, of humble position and simple pretension, are very good as corn cutters, but the

physician takes a look at the faulty shoe that causes the corn, and by proper advice removes the cause, cutting off the corn no more, but cutting off the corn-cutter's fee.

Sometimes a mineral water treatment at some favorable watering place is indicated, as the best of results follow the use of the waters, especially if the husband stays at home, and both connubial partners rest from their duties. It is, however, an open question whether the water or the rest is the more beneficial, but the preponderance of evidence is in favor of the vacation.

In genital excess there is a chronic metritis, characterized

by a proliferation of the anatomical elements of the mucous tissue and that adjacent to it. These proliferations may be essentially mucous in character, such as polypi, or fibrous, form ing fibromata.

If these have not reached a great degree of development, such as would demand surgical interference, they can be easily treated with injections of iodine and vaseline, 1 : 10, or with a solution of iodine in water. Under the action of iodide of potash, internally, the proliferations will rapidly disappear.



VII.

Atresia of the Neck.

UNDOUBTEDLY one of the most frequent causes of sterility is stenosis, or impermeability of the neck, the canal being sometimes so narrow, so long, or so sinuous, that the spermatozoid finds the road impassable, and perishes by the roadside while travelling on the pilgrimage toward its Mecca.

Dilatation, pure and simple, is the only safe and efficacious logical treatment of permanent benefit.

Incision with the bistoury is not without danger, primarily from hemorrhage, and secondarily from absorption and consequent septicæmia. Whatever the mean, the extreme result is cicatrization in about eight days, by first intention. The temporary benefit is then effaced, or an even worse state of affairs is induced than at first existed, since the cicatricial tissue is tougher, less elastic, and less permeable. Evidently nothing is gained by this treatment, and something is lost.

Division by the thermo-cautery may have some advantages over the bistoury; it does not cause hemorrhage, and there is

no union by first intention, neither is there the same danger of septicæmia. But the final result is the same: cicatrization takes place more slowly, but is none the less complete; the wound proliferates, fills, up and heals, so that after fifteen days at the most the neck is as constricted and narrow as before, besides being less supple.

Dilatation by a laminaria, or sponge tent, is the most simple method, but the results are not all that is to be desired. They are of short duration. It may be successful if the husband avails himself immediately of the opportunity temporarily presented, but as the result is tran-

sient, it must be repeated if the opportunity is lost, and the wife may not readily consent to a repetition.

Forcible dilatation fulfils all the indications of security in means, and permanency in results. The simplest instrument is a modified urethal sound, shortened in length, and curved the same as an uterine sound.

Each of the uterine dilatators is numbered, there being fifty in a set, the smallest being one millimetre in diameter, the largest one centimetre. The others are graded in size between these extremes. They are preferably made of aluminum, or block tin, readily adapted to

and retaining any desired curve. Armed with this series of dilatators, any emergency may be met.

Dilatation by this method is slow, progressive, and permanent. The ground gained is not lost, but remains as a material acquisition for the physician and patient. The one is successful, and the other happy, and sterility is permanently overcome, when due to stenosis alone.

This dilatation should be progressive, three sounds being used at each treatment, every two days, to avoid the induction of uterine reaction. Lubricate the sounds with vaseline, extract of belladonna, and cocaine, to

facilitate their introduction, and annul pain. Under these conditions neither failure nor accidents are to be feared, for they never occur.

VIII.

Uterine Deviations.

CAN a uterine deviation be cured by medication? No! It is a stumbling stone. As well try to correct the deformity of a hunchback by medicine. Even if the medicine used had no dangers, it would be to wield imaginary weapons against a material foe. It would be like trying to disperse a mob by reading the riot act.

Sometimes the trouble may be relieved by an abdominal supporter, well made and fitted, but this is, at best, simply a support, and not a means of cure It is uterine orthopedy, not therapeusis. Thus a Hodge's pessary may be useful in retroversion, and Gariel's pessary in prolapse ; but between sustaining and curing there is a wide difference, and the words can never become synonymous.

The use of pessaries is so common, and the various forms so ingenious, that we cannot say but that in some degree they may, while in place, correct the deviation and relieve the uneasiness or actual pain resulting

therefrom. But this is all they can be expected to do. At best they are simply props which, being removed, leave the organ without support, and allow it to resume its former state.

The only true means for a veritable cure of the deviation is and always will be pregnancy, if it is possible or attainable. It is the province of the physician to prescribe the manner of decubitus which is best adapted in each case to attain this result, and also to specify the most favorable moments for conception, namely, just before or after the menses. In anteversion the bladder should be filled to its greatest extent; in retroversion

the genu-pectoral position is advisable, while a lateral decubitus, upon the side, is indicated in lateroversion. Each of these methods is a rational one, but to attempt to redress the faulty position by mechanical womb-supporters, electricity, or cutting operations, is often to add a metritis, for the less one touches the uterus the more apt it is to become pregnant.

There are exceptions, in certain cases, to this method of treatment. Where the retroversion has become chronic, adherences often occur; the uterus becomes adherent to the adjacent tissues, and may be bound down in the sacral curvature of

the pelvic basin, compressing the rectum and presenting an obstacle to the functions of each organ. Here it is essential that these adhesions should be broken up and the uterus freed from under the osseous arc, which lends itself to no compromise. To attempt impregnation in such a case is to expose



the woman to the possibility and probability of an abortion, with serious complications threatening the life of the patient.

IX.

Salpingitis; Obliteration of the Fallopian Tubes.



LIKE many other organs of the body, the Fallopian tubes are in duplicate, each canal leading from the ovary to the uterus. Through these tubes, ten to twelve centimetres in length, the spermatozoid passes to fecundate the egg, while the ovule thus vitalized passes over the same road to reach the uterus, where it is to lodge for nine months.

It is therefore absolutely essential that these tubes shall be permeable throughout their entire length, since the least obstacle will arrest the passage of the spermatozoid in its journey from the uterus to the ovary, or of the ovule going from the ovary to the uterus.

As this canal is but a millimetre in diameter in its normal state, it is readily seen that even a simple congestion may utterly obliterate it. Moreover it is uncomfortably compromised by the proximity of two most sensitive organs,—the ovary, at the one end, which becomes congested every month and becomes turgescent each time that the

woman is excited, and at the other end the uterus into which it is implanted, an organ subjected to all the changes of the genital indulgence. The Fallopian tubes cannot therefore be blamed if they revolt when they are subjected to so many exciting and irritating causes.

In addition, the tubes themselves have special functions. They are lined with mucous tissue having vibratory cilia and glands secreting special mucus, functionating like all other organs of the body, easily becoming congested or inflamed, or otherwise disordered.

This canal is the natural cemetery of the spermatozoids

and ovules which die there. Moreover, though microscopical in size, these elements are none the less septic in their action upon the medium in which they lie, and may, through it, cause many serious consequences upon the general health directly inducing sterility. It is beyond question that the most numerous causes of sterility arise in and from the Fallopian tubes, by reason of their length, their tenuity, their environment, and their multiple functions.

As the obliteration of the deferent canal is the most common seat of sterility in man, so the Fallopian canal is no less a danger of sterility in woman.

Here we may seek the cause of sterility which we cannot otherwise explain. To this organ we should give our attention in such cases, and our care should be the greater, as the organ is so deeply seated and so delicate that a perfect diagnosis is difficult, if not impossible.

In man the absence of spermatozoids proves an obliteration of the deferent canal, but we have no analogous proof in woman, since we cannot absolutely assure ourselves of the absence of the ovule. Diagnosis must be made from a study of ovulation and by the elimination of other lesions.

While treatment may be effi-

cacious in acute affections of the tubes, it is futile in chronic cases.

In acute forms antiphlogistics, leeches, scarification, alkaline waters, local and general baths, pediluvia and cataplasms, with slow purgatives, are indicated.

In chronic forms revulsives, calomel in minute doses, iodine internally and topically, and uterine purgatives, as glycerine and aloes, may be beneficial.

The indications, in both cases, are to render the tubes permeable, and this will in each case determine the treatment.

Happy results may follow the use of galvanism, or the actual cautery applied to the vagina

walls or in the cul de sac. Yet in all cases the cure is only possible, and not often probable. The treatment is long and irksome, and many will have no patience to continue it. This is unfortunate, for he who expects the end should accept the means. The physician, no less than the patient, dislikes tedious treatment, and yet he knows that he cannot with impunity force highly sensitive organs by too great violence. Prudence and the Fabian policy of delay alone will often attain happy results. To make haste slowly in all uterine lesions is the surest way of arriving at the desired result.

X.

Pelvic Neuralgia.

ON the subject of nervousness little need be said. Our age is the age of nerves. Those who have no nerves today are not in the swim. The greatest compliment that one can render a woman is to say she is nervous.

In the Romantic Period every one aspired to have a wan and pallid face, with long hair, a la Werther, and even posed as a consumptive, this being the par-

ticular distinction. Marguerite Gautier founded this school.

Today the world is content to have nerves, and the seal of distinction is neuralgia. It would be strange indeed with our exciting environment if we did not have nerves. Something would be wrong if we did not have irritable nerves, but then what villainous tricks they play us.

As physicians, we wonder by what miracle of compensation we are not called more frequently to treat the frightful crises of nervous storm, when we see the thousands of workshops, crowded with young women poorly nourished, bound

and driven from morning till night, working like demons, living on a canary-bird diet of bread and water, sometimes even without the bread; sitting up far into the night or passing sleepless nights; braced up by strong coffee or tea intemperately and harmfully used; breathing impure and overheated air; living in little nooks of lodging-houses, or hall bedrooms, or like doves, in garrets, under the eaves, or perhaps, in more favored circumstances, in a little box of a house, where household work demands more expenditure of the already overworked forces. It is a wonder, when we consider how the world



POVERTY.—Potent Power, Promoting Prostitution and Prevention.

uses and amuses itself, without the slightest attention to hygienic principles, that the majority does not have, at least, St. Vitus' Dance.

Wherever it may occur, neuralgia is expressive of a revolt of the overworked nerves. It manifests itself usually at the same point, and it has a predilection for the head. Then it involves the stomach, under the name of gastralgia; then the sides, under the name of pleurodynia; then the intestines, under the name of enteralgia; finally, it settles down in the uterus, which is subject to the genital melange of unsatisfied excitement, and where it puts in its

best work, causing radiating and tearing pains which make the woman a true martyr.

A true diagnosis must be made when these pelvic neuralgias occur, for upon the accuracy of the diagnosis the result depends. All uterine and ovarian pains are not neuralgic, the characteristic of neuralgia being an absence of material lesions in the organs involved. When, therefore, no organic lesion can be found in the uterus or ovaries, we naturally suspect neuralgia, and the concomitant and sequelent symptoms will soon prove the truth.

Neuralgia is often periodic, having exacerbations at the

menstrual term, or following walking or long standing. The urine is copious and clear, the pulse, as well as the temperature, is normal, and the only pathognomic sign is the intermittence and exacerbation.

If the uterus alone is affected, the sensitive point will be found about one centimetre in front of and to the right of the neck (Valleix). If the ovary alone is involved, the sensitive point will be in the iliac region on the affected side, and pressure with the finger will aggravate the pain.

The important point which concerns us in relation to sterility is, that pelvic neuralgia is

a potent preventative of conception.

Treatment, first of all, demands the removal of the general cause, if it is within the province of hygiene; secondly, it demands the relief of the local pain by any therapeutic means possible, and an attempt to drive it to some other part of the economy and fix it there, if we cannot drive it out altogether. By this means we can relieve the uterus and its external and internal appendages of this erethrism, so prejudicial to conception.

(Gerard recommends the use of chloroformed vapor within the uterus, a method which is

not without very great danger). Another excellent remedy is the application, by a suppository or tampon, of cacao butter, 10 grammes, and extract of belladonna, opium, and chlorhydrate of cocaine, each 5 centigrammes. Chloral, asafœtida, opium, and antipyrine, topically, are also efficacious.

In ovarian neuralgia the same means may be employed, aided by dry cupping over the painful region, and, in case of need, small blisters, with morphine (vesicatoires roses). Slight purgatives and warm injections of an infusion of the leaves of the night-shade may be efficacious.

In one case the apparent neuralgia is due to rheumatism, and the two elements may be combined without material lesions in either case. The use of a flannel binder around the abdomen will do much to relieve this, and internally we should give salicylate of soda, to eradicate the pain.



XI.

Frigidity.



NOT to experience pleasurable sensations during intercourse, as far as the woman is concerned, is no bar to conception. Pleasure is absent in the majority of cases, and this fact seems to contradict the general idea that pleasure of some kind is the reward given by nature as a recompense for the pain of procreation.

In man, pleasure is undoubtedly necessary as an adjunct to

the act, for without its excitation no ejaculation would take place. But the woman may be deprived to a greater or less extent of this pleasure, and things go on with her as a passive agent. Still, nature is not cruel, and fulfils all that she promises when the organs play their perfect part, as they will in a state of health.

There are two kinds of organs and two kinds of sensibilities. The organs are those of relative life and those of organic life, the former being under the power of the will, the latter under the power of the instinct.

The two kinds of sensibility are, first, those emanating from

the spinal cord and brain, which are under the control of the will and are developed by exercise of this power, the external male and female genital organs coming in this class. The second class includes the special sensibility of the sympathetic system. It is instinctive, and yet beyond our control. This class also includes the sensibility and sensitiveness of the uterus and its appendages.

In man, frigidity is simply characterized by an absence of erection. He may not be actually impotent, for the semen may be normal in production, quality, and quantity, but he is to all intents impotent, as he

cannot consummate the act. The cerebral stimulus which induces erection is absent, perhaps as the result of self-abuse, intemperance in the act, or indifference to the partner of his joys. He may be stricken with paresis or paralysis, and these may be temporary or permanent, relative or absolute. The state may also depend upon the imagination or the reason, the two sustaining pillars of the genital edifice.

The imagination is pre-eminently a creative faculty, revivifying the memories of the past, giving form to the desires of the present, and materializing the hopes of the future. It is, above

everything, utterly different from reason, which takes nothing for granted, but proves the reality. The former opens before us a boundless horizon of possibility, and discloses worlds peopled with beautiful or ghastly phantoms; the latter hems us within the narrow hedge of a brutal reality, and shows life to us through no irridescent prism, and without the wings of Pegasus.

Frigidity is strongly under the influence of the imagination, which creates these sunny or shadowy phantoms at the psychic moment; and when the relation between the brain and the senses is in unstable equi-

librium, a functional impotence ensues, proportionate to the difference existing between the dream and the reality.

Frigidity is essentially the same in woman as in man. It has the same causes and the same relative consequences in the absence of pleasure, but the mechanism is not always the same. In man there is a disturbance of equilibrium, due to abuse of pleasure. In a word, he is satiated. In woman, on the contrary, these relations have never been established, and the cerebro-spinal education has not been completed, as originally and at the time designed. One learns to read with difficulty

at thirty, and it is still more difficult to make up the mind at this age to be a true bachelor of



love. Woman is confined within the narrow and rigorous moral cloisters of duty, and her brain has no acquaintance with the relations of the sexual senses. Instinct may have spoken to her about it, or hinted at it, but reason, that cold-blooded person, clothes her in Siberian furs which suffocate the imagination.

The day of marriage, arriving late in life, finds the organs atrophied and not respondent to the call made upon them, for, more than any other function, the one in question is essentially relative, dependent upon a happy combination of action. In this physiological problem of arithmetic one and one make one, and the sum of the whole is equal to the parts.

On the other hand, there is a philosophic aspect of the question which tends to show that sexual pleasure is given exclusively to the human family as a powerful incentive to sociability, without which every one would go off all alone by him or her-

self. Every day separations occur which are nominally set down to incompatibility of temperament, when, in reality, they are incompatibilities of pleasure, for the pillow is now, as it ever was and always will be, the best of conciliators, the most powerful and the most silent.

Woman, like the man, may be frigid, but conversely : her frigidity is due to unsatisfied hunger, while that of the man is due to satiety.

Man, under the influence of desire, has an erection, and the woman has a similar erection. The genital organs of the two sexes are fitted and adapted to each other in every respect. The

one sex has no organ which has not its analogue in the other sex, no muscle which has not its equivalent, no pleasure which the one does not share with the other. The woman has two erectile bodies, which become turgescent under the excitation of cerebral stimulus. These are situated at the entrance of the vagina, at the superior portion of the vestibule concealed under the pubic arch. She has a gland, the clitoris, which becomes erect during coitus, and adapts itself to contact and friction with the penis. The vagina itself is supplied with ridges of erectile tissue throughout its whole length; so that, in a

word, the woman, the same as the man, manifests a genital excitation and turgescence under the same circumstances. The trouble is, she is not always ready.

Imagination is as necessary for her as for the man. She needs the same excitement, and especially demands the preliminaries of endearing hugs and kisses, to lead up to the consummation of desire. If she is passive, with the genital muscles relaxed and the spirit cold, she can take no part in the duet of love; she will be voiceless, and the duet remains a solo, while mechanical friction alone excites but does not satisfy the partner.



Perfect harmony alone results when the woman is set to the same scale and time as the man. Perfect rhythm is never possible under opposite conditions.

They say that the infant is simply the union of the two cells. Be it so, there is still a degree, as in music. The savage is charmed by savage music on the tom-tom or some similar crude instrument, but the more civilized people of the world require more cultured music for

the dance. The savage may be content with primitive music, but the more intellectual and refined woman must study in the conservatory the dreams of virtuosos, in order to be transported to the seventh heaven.

All of which goes to show that where the will and sensation are concerned, we are satisfied and do our perfect work only when it is in accordance with our desires; that coolness cools in turn, that ardor warms in turn; that we seek reciprocity in desire and feeling; that like seeks like, and that desire is satisfied and pleasure attained only when they are mutual.

Frigidity in man may be due

to one of three causes, organic, symptomatic, or moral, according as the organism is imperfect or diseased, or as there is a lack of attraction of the one partner for the other.

Each of these forms merits lengthy discussion, too long for notice in this small work. In fact, a whole book could be written on this subject, and we refer, for further information, to those that have been written.

As for the woman who becomes pregnant without pleasurable sensation in intercourse, we can simply say that sensation may die, while instinct still lives.

The subject is a delicate one, at best, but in a treatise on

sterility it bears so strongly on the matter in question that it is essential to discuss or suggest some of the secrets of the alcove.



XII.

Fecundation without Sensation.



O direct will-power is exercised over the uterus. The external organs alone are under this power, and the uterus, like all other internal organs, is, so to speak, automatic. Once started into functional activity, it runs like a clock, until the springs run down.

But, although it is not influenced by the will, it is influenced by instinct. It has sensibility

and special functions, and is directly under the protection of the sympathetic system. By this centre of conservative and reparative activity, all the tissues are maintained and repaired with the greatest care, and when the ensemble of tissues, collectively classed as the "system of man," is completely developed, it is still the sympathetic system which watches over it, checks excessive waste, and attends to reproduction. The system is therefore charged with the most potent energy, which it distributes with impartial hand.

It is but little disturbed by the storms which rage against the exterior of the house we live in.

It is safely harbored within. It is not of the world at large, and has no pleasure or sorrow in its joy or pain. It is always alert to preserve the individual, and can attend to no play or diversion.

The uterus opens its doors with a will to the spermatozoid that knocks, and as quickly closes it again, imprisoning all that may enter, regardless of whence they come or how they come, little caring whether the little man was elaborated in joy or in sorrow. It receives all indiscriminately, but it quickly rejects those that will not pass muster. So we see how fecundation may occur without joy.

But this spasm of the uterine neck does not always exist, nor may it endure through disappointment or abuse. Deceive a dog by presenting him a piece of meat, and just as he is about to seize it withdraw it and give him a slap on the nose instead; then try him a second time, and see if he will even offer to bite it. More likely you will be bitten, instead. Just so the uterus opens at the presentation of the semen, but when it has been repeatedly deceived, when it has seen refreshing showers in its vicinity pass by without giving it any benefit, like soil parched by the sun, it dries up, not even refreshed by a grateful sprinkling.

In a word, the uterus that is often deceived, whether it is by sterile intercourse or by masturbation, soon becomes disinterested, and fails in its functions, looking at the matter in an indifferent way, soon becoming paralyzed from lack of exercise.

Hence, many a woman who might have conceived, even if she was frigid, becomes sterile, owing to the deceit of illusory manœuvres, or unnatural methods of intercourse.

The treatment is easy in either case. To counteract uterine inertia electricity is indicated, to re-establish the normal contractility. If, on the other hand, there is abnormal excitability

and contractility, rest is indicated, and the use of opium or other anti-spasmodics.



XIII.

Absence of Spermatozoids.



N à careful compilation of statistics of the North, South, East, and West, we shall find that there is an average of ten per cent. of sterile men. Half of this number owe this disability to congenital sterility, and by the other half it is acquired. That is, of one hundred men, taken hap-hazard,

ten will be sterile, five from their own fault, and five innocently so, from causes beyond their control.

This proportion, frightful as it is, is not astonishing, if we consider the case. Do we not see in our forests mighty trees that are sterile? They spring up, develop, and die, without perpetuating their species. They produce neither flower nor fruit, and yet there are plenty of trees in the same forest that perpetuate the species.

We ought not, therefore, to be afraid that the earth will be depopulated, for nine-tenths of the population is left to look after the perpetuatton of the

species, and they will take good care to fill the void left by the other tenth that is sterile.

But it is those who are sterile that, as a rule, are most desirous of perpetuating the species. Here is the rub. The earth lies fallow every four years — it is worn out by crops and must rest: man also must lie fallow, according to the inevitable law.

Such a sterility is beyond the hope even of a cure. It is perfectly useless to attempt to find a spermatozoid, under the microscope, even, which shows such little things, for what we do not find one day we cannot hope to find the next day, since whatever the disease or excess, there

are always at least one or more spermatozoids present, if there are any.

Whatever the cause of this sterility, whether natural or acquired, it is incurable. Some authors contend that sterility caused by a double orchitis cures itself spontaneously, but these cures follow simple engorgement only, and not classic obliteration.

But when the spermatozoids are few, but that few vigorous, then we may at least hope for a cure, by attention to the general health.

Then we can prescribe with advantage hypophosphites of soda and strychnine, the phos-

phates of zinc or arsenic, hydro-therapy, etc.



Part VI.

ARTIFICIAL FECUNDATION.

I.

Pro Domo Mea.



INCE the refusal by the Faculty of my thesis on artificial fecundation, five years ago, I announce with pleasure that twenty thousand copies of the "Journal Barral" containing the thesis have been sold.

This is the material kind of an echo which the sympathetic people give to the negations of oppression, especially when that oppression is unjust.

If this thesis had been received by the Faculty, it would now have been entombed in the annual archives, with many others, where it would have lain concealed and unknown, as one not only dead but forgotten.

I do not question the reason or right of my judges. Their conscience will answer this. Doubtless they feared that an unpleasant notoriety might follow their endorsement of a thesis which appeared to them a phantasy, because, forsooth, I did not produce sworn certificates in proof of my statements. Yet these same judges knew that the first duty of the physician is absolute secrecy and dis-

cretion, and so a motive for rejection was easily found.

My past modesty and my incessant work should have vouched for my future rectitude, but as they did not weigh these in the balance, they gave to me an unpleasant fame which I did not seek, and which I submit to rather than enjoy; for if it is true that "those who have no history are happiest," so also is it true that the unknown are happy, for fame is not easily borne by a sensible and true heart.

While personally I have not lent myself to the praise of my own name, I have, on the other hand, zealously defended and

advocated my ideas, as is well known.

If all physicians do not practise artificial impregnation, it is because they are prejudiced by a deep-rooted aversion which cannot be eradicated in a day.

On the other hand, some less timid physicians have given it too much prominence and made too noticeable a specialty of it, thus compromising the dignity of the profession.

To obviate each of these extremes, I have published the methods of the operation and the indications for its legitimate use, in such a form that it may be instructive to the physician and patient alike.

My intention is good and disinterested, and even if the critic censure the means, he cannot deny this laudable object. The value of the method and the simplicity of the operation are described without any ultra motive, and without desire of creating a monopoly.

The remainder of this chapter relates to the campaign commenced by the author fifteen years ago in favor of electricity, which was then in disfavor. Six books were written by him, and for two years he edited a journal devoted to the subject. He has also been a zealous advocate, by writing and in practice, of the great

usefulness of the telephone between physician and patient. He is convinced that in ten years, more or less, some one will rediscover this idea and that he will then be forgotten.



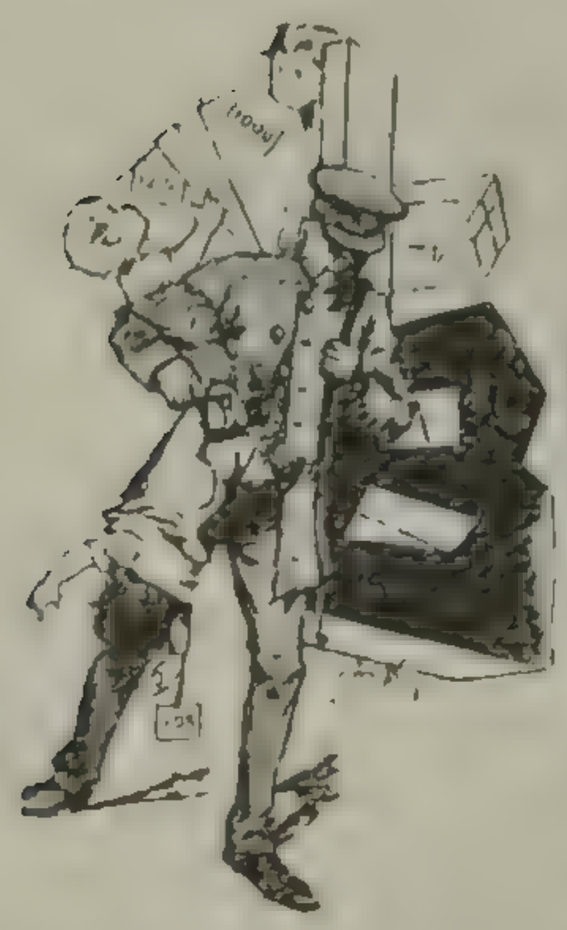
In this he is quite right, for we have had a little experience in that kind of rediscovery ourselves. "But," says Gerard, "we sow the useful ideas, and

others reap the benefits and reward. The makers of fire-works seldom fire them off. But we demand at least the epitaph, when our hour has come,—

"To him who has labored much,
Will be forgiven much."

II.

What is Artificial Fecundation?



BECAUSE of ignorance, many persons sincerely believe that we can, as physicians, manufacture infants of all kinds. By these, all that is considered necessary is to give

an order, as at the Louvre, for a child of a certain color and sex, and pre-determined physical and moral character. The theatre and the burlesque (in France) have fostered this idea, and made such a farce of artificial fecundation that it has even been set to song and a novel written upon it.

"But since the writing of my thesis," says Gerard, "a salutary reaction has taken place and shown that artificial impregnation is simply the sowing, by another, of a seed which would otherwise be lost, thus ensuring a full harvest by attention to the proper time, method, and place."

This operation has its analogues in every day practice. Take, for example, artificial alimentation, sometimes necessary in medicine. A patient has undergone a serious operation upon the tongue, and has a dressing in place which precludes the possibility of opening the mouth for a number of days. How shall he be nourished? The physician simply solves the problem by inserting a catheter through the nose and back of the mouth, and thence into the œsophagus. Then he injects nourishing fluids as required, which reach the stomach, it is true, through an artificial passage, but the food which thus

reaches it is none the less nourishing and sustaining.

In artificial impregnation the process is similar. The husband attempts to perform the natural marital duties, but finds that his offering at the shrine of Venus is met by a material obstacle. The physician, taking the offering, by the intervention of his instruments acts as a mediator, surmounts the obstacle, and places the offering directly upon the altar. There is nothing extraordinary or mysterious about it. It is a simple service in itself, but the results are grand.

To those who bear children by the dozen the operation is absurd and unnecessary. Only

the sterile can appreciate the benefits of such a simple, logical intervention.

As for our allegorical and figurative designs illustrating this subject, we make this excuse : it is sometimes best to disguise an unpalatable medicine in a bon-bon, as we have done in this case.



III.

Professional Dignity.



PERATIONS devised for the relief of impotence may be classed under two heads, those of complaisance, and those of necessity. Every physician who performs the former fails in his duty, but it is hard to tell where the domain of one begins and the other ends.

In the former case a messenger comes to the physician—

" please call at number 34, such a street. You will find furnished rooms there, and in chamber 22 you will find a woman in bed, and on the mantel-piece a bottle of semen which appears to me to be of excellent quality. Kindly make me a father as soon as possible. I am going hunting; here is twenty-five dollars for your fee." This is an operation of complaisance, and deserves the censure of the moralist.

On the other hand, the physician who has attended a family several years, who has realized that there is a legitimate desire for children in that family, and has treated the causes of sterility six months, or a year, or

two years, without result, is justified in making an operation, if necessary, especially as he may, by a suceessful result, prevent divorce or adultery.

The physician enters the innermost chambers of the secret heart, exercises the duties of a patriarch, is recognized almost as a father, arbitrates in the most complicated and delicate cases as a conciliator, and is like a priest in his mission of charity and pardon: his conscience should be active and without remorse in his contact with human misery.

Who, then, can speak of professional morality and dignity, when, clothed in the armor of

just purpose and intention, the physician decides what is just, good, and right in the exercise of his skill.

Dr. Roubaud, in his chapter on artificial fecundation, makes the following remarks: "The physician makes himself an accessory when he compromises his honor and dignity by guilty acts or intentions, as in criminal abortion; when he lends himself to the furtherance of licentiousness, as, for example, by tickling the clitoris, for the production of libidinous pleasure; where he serves the caprices of a woman, when he tends her in an imaginary sickness for the satisfaction of her desires and erotomania;

but he is not disgraced when he attempts any operation to relieve or alleviate the consequences of a lesion which may be inalterable in his own estimation, that of his confreres, or that of the public.



IV.

Artificial Impregnation a Legitimate Operation.



O code of ethics is so restrictive but that it admits of extenuation. This applies even to crime, for there are just and reasonable situations that admit of defence and are worthy of pity, if not pardon: as when a starving man steals a loaf of bread.

There is a man, for example, absorbed in all the cares of

active business, engrossed with the worry of an immense establishment which he has brought up to success by his energy. He has remained virtually chaste throughout the long period of internal promptings and external temptation, of work and privation. At last he is in position to maintain a family, and he marries.

Say he is well put together and constitutionally strong, and has a heart at forty-five like a nine-year-old boy, brand new to all intents and purposes. He marries a girl of twenty-two, expecting to live thereafter in the midst of joy and a numerous family.

But he has counted too much upon unhatched chickens. His aptitudes and his relative age have deceived him, and he realizes, with chagrin, that he cannot come up to the mark of duty: he is frigid without realizing it. His whole morale has degenerated, his worth is not equal to that of an old man, he is below zero in the connubial scale, he is a man of yesterday.

The wife is disappointed, the grandmother commiserates, and the grandfather hints at the probability that the father in futuro has celebrated the nuptial act, if not the ceremony, too often in his earlier days.

He consults a physician, who

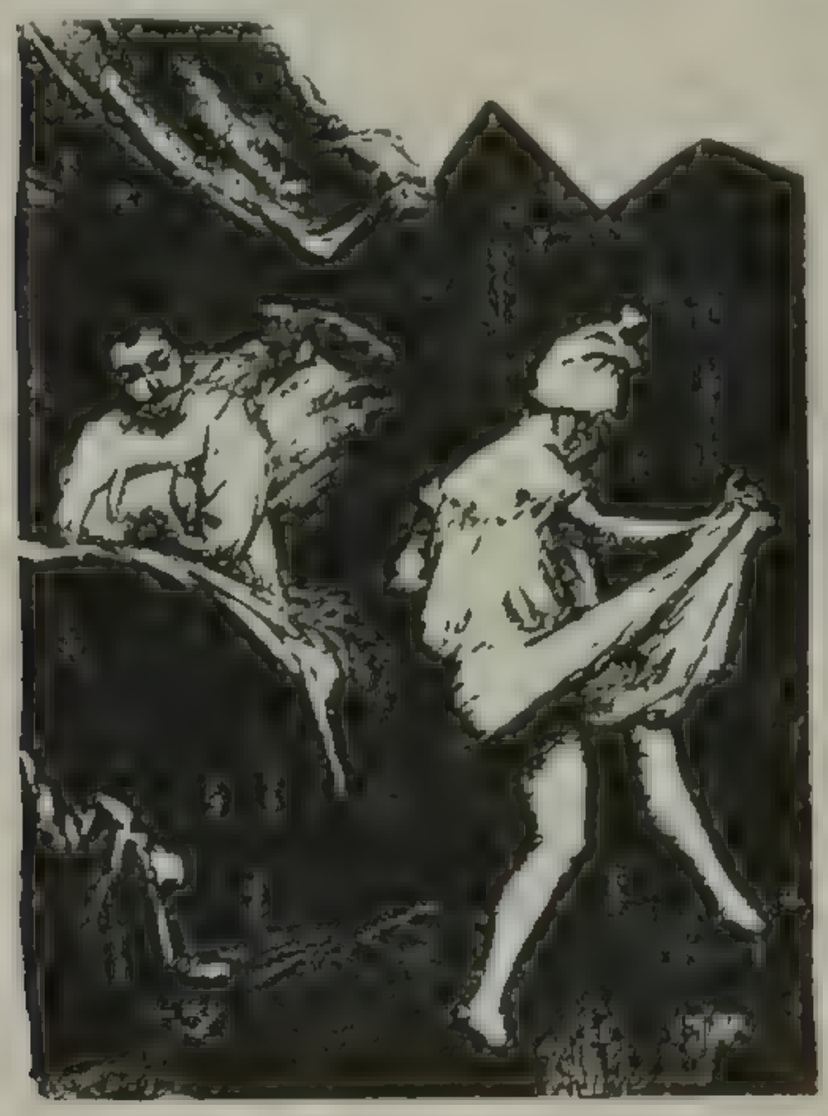
diagnoses frigidity, due to atrophy. Perhaps he advises a cultivation of the genital animus by the reading of erotic books, or perhaps the patient goes to visit some young girls who have



the savoir faire of experience, and can throw light on the subject, but finally he lays his head on the conjugal pillow burning with desire, and places his offer-

ing on the threshold of Venus' temple.

Months, and even years, pass, during which he has done every-



thing and tried everything, and yet he remains as barren as

winter. His wife, on her part, despairs and laments. It is not a question of the night or the pillow that bring rosy infants or chubby children.

Soon the wife is disgusted with the exercise of a girl, and desires a child so much that she throws modesty to the winds, and as she obtains but half satisfaction from her lawful spouse, she first dreams of, and then indulges in, adultery, as a practical and honest means for the satisfaction of pleasure, if not of a desire for maternity.

What would you have done had you been in the place of this honest man who is now a victim of hard work in his

youth? Would you not have sanctioned an honest adultery as the only rational remedy, efficacious and salutary, against such a possibility in after life?

Such a man's history is, beyond doubt, a rational one, as



regards results. The husband thus assured against failure proves his vigor to his wife by bringing onto the stage even the fifth child without aid, and he could, without any great stretch of imagination, fill a pavilion.

Artificial fecundation practiced under these conditions is legitimate, for it is the only rational and moral treatment against frigidity, and is the most infallible and the most honest.

If it is justifiable for the man, it is equally justifiable for the woman, for the same conditions exist in the one as in the other, and artificial fecundation is equally indicated in each case, as the last and sole recourse.

Take, for example, a young girl of eighteen years, of the best family, fully educated in belles lettres and corporeal exercise. At fifteen she rides a horse like a riding-master. She has a passion for riding, and

more than once has tired out her father, still young and valiant.



She leaps hedges and ditches without fear or fatigue, and is a good hunter. She marries a young and vigorous lieutenant, hopes for a long line of progeny, and—gets nothing. They go to Paris, consult eminent physicians, who can suggest nothing, either for the husband or wife, except, perhaps, a slight flexion of the neck to the rear. They prescribe genital rest, douches, a hypogastric belt, suppression of the horse-

back exercise(the probable cause of the deviation), and allow only walking, or riding in a carriage, and as a result, the young woman does not become pregnant under this rational regimen.

Nothing has been done, and two years have been lost in seeking for this white blackbird, called uterine reposition. Then various positions are prescribed, aided by pessaries of wonderful design and shape, and as a last recourse artificial impregnation is resorted to, with the result that the girl bears two children in succession, and conceives the second in the natural way, without the intervention of the physician or artificial means.

In this case success is complete, and the method legitimate, since for three years three eminent gynecologists have treated the case without practical result. Fortunately, they were prudent and skillful, otherwise unalterable sterility might have resulted from their treatment. For it is a general rule that the less the uterus is manipulated, the more fertile it is. Therefore, on account of this rule, we rather incline to an early application of the method of artificial impregnation, when we meet a case of uterine lesion indicating an otherwise long treatment,— for the result justifies the means in all cases.

V.

Maternal Desire.



LET the question be what it may, we must put ourselves in others' places, to judge upon it conscientiously and correctly. We must enter into the skin, as it were, of the veritable being in question, and not treat it as we would a problem of figures.

Here, for instance, is a young woman married for six years to

a charming man, full of vigor and health, but in spite of these favorable circumstances and the most conscientious attempts, the union is marked by sterility. The woman is already a mother at heart, and loves children, the weak, pets, and dolls. She needs something to love, something to devote herself to; for, as we know, the noblest part of love, its greatest joy, is in giving, not so much in receiving. Whoever loves from selfish gratification, egotistically or with interest, so to speak, does not love in the true sense.

To love is not the meeting of hands, not the aspirations of two hearts mutually attracted to each

other, not the experience of carnal joy, not even the sweet and poetic dream of the brain, which has nothing material. Love is at the same time the most heavenly and the most earthly thing. It is cosmic in origin, and exists in all matter as affinity. Every cell of the one thirsts for the offering of the other. It is the great law of attraction, the greater, the nearer the bodies approach each other. Whoever holds himself at a distance has so much the greater chance of remaining virtuous, but he who approaches the other, succumbs to the temptation.

Woman, frail, delicate, and sensitive being that she is, is

governed by the law that bodies attract each other in direct proportion to their mass. As a satellite of powerful Jupiter, woman gravitates in man's orbit by reason of her effeminate nature.

The final end of love being reproduction, nature insists upon this absolutely and imperiously. It is a living and active instinct, always present in the spirit until it is satisfied in the body. Woman may resist temptation when a girl, before she has come within the orbit of man's attractions, but when marriage places her in the arms of the husband, how can she longer resist the instinct which urges her to perpetuate the species.

A fixed idea characterizes monomania, which is in itself only a form of foolishness, and leads to irresponsibility. We thus find ourselves in a pretty dilemma; but fool or mother (there is no middle term for the true woman in the true acceptance of the word), she is possessed of one pre-eminent idea.

Our code of marriage is a simple ceremony, sanctioned by usage, a compromise of society; it is essentially human, and not based on physiological laws. When a woman remains sterile and her instinct is unsatisfied, she cannot provide herself with a substitute without coming under public condemnation. She

is held by a private charter, as personal property, bound with the seal of society. If she breaks the charter, in word or deed, she is declared to be at least vicious; if she keeps to its letter and spirit she becomes mad; for madness in a dog has no other causes, in many cases, than the chain which holds and galls him. The chain that binds the woman is often of gold or silk, but no less a bond heavy to endure. It matters little what may be the situation,—grandeur, fortune, family, or religion,—if there is not with it the compensatory joy of maternity. There burns within her bosom a passionate longing for the male who alone can appease

her sole desire, her sole ambition, her sole happiness, by maternity.

Folly, it is true; but a respectable kind of folly, since it is grounded on absolute and imperious dictates of nature, which pursues its end with ardency and perseverance.

On the other hand, it seems that every woman who eludes or evades these laws of nature, who fails to respect them through indifference, also departs from the natural law and its advantages, which those receive who submit thereto. We might in this case formulate the law, that a woman is foolish who voluntarily avoids maternity.

In reality, without family nothing is stable in the social relations or in the State. In many cases, after marriage the husband becomes inattentive. There is a wide difference between love that is new and love that is old. There is often an entre acte which is a dull and silent blank: the man, busy with his affairs all the



day, yields to the pressure of the times, seeks diversion in the

evening, absents himself from home, as a rule, leaving his wife alone and comfortless; the wife, wearied by ennui, seeks to counteract the effect by reading some exciting novel or dreaming erotic dreams.

The danger is a terribly real one, for it often leads the woman into bad ways,—her feminine and maternal instinct pushing her onto the slippery slope of temptation and transgression of the civil and moral law.

Adultery finds a ready excuse to appease the conscience, in these cases, because she believes her husband untrue to his trusts. Even when the calmer senses speak, the maternal instincts

evade its reasons, and take the woman into higher and more glorious spheres,—the hope of a child purifying her ardor.

How many women in yielding to a lover are only yielding to the dreams of hope which is inherent in them, and has already conceived in the heart! We could cite case after case of private confessions where this has been the sole excuse for unfaithfulness.

The husband is held by no paternal ties, where there is no child; and this, to-day, is a common and apparently plausible excuse for desertion of home, or divorce,—yet the excuse is no longer tenable, and is simply a

pretext. But if the reason does exist, he finds consolation in the club, and at the café, or seeks his mistresses, and replaces love with hate.

The woman, on her side, seeks relief in the reading of frivolous books that inflame the imagination, and lead her to sin, at first in thought, and finally in deed, in spite of her better judgment, her education, and rigid environment of social ethics. Shadowed by this torment of the spirit, she seeks satisfaction of the heart in natural love.

A sign of weakness, it is true, in each case, but of a weakness common to all humanity. How much better to guard against

this contingency by a little child, who alone can often preserve the honor of the woman and the man, and hold the house hold together, — a true link in the chain of love.



VI.

Morality of Artificial Fecundation.



O tenable objection can hold ground against the morality and necessity of artificial fecundation held out in preceding chapters. It is often the supreme hope, and the last resource.

Some believe that artificial fecundation is not accepted by the majority of physicians, and that it is practiced by but few, who make of it a specialty, lucrative in its material results to physician and patient, without any implication of their dignity.

This is a grave error. Every conscientious physician must look at it as a rational operation, in a physiological light, since it fulfils all the conditions of rational conception. Science raises no objections, it is eminently practicable, and easily performed. The question was ably discussed in the Society of Legal Medicine at Paris, at its meeting of Dec. 10, 1883, apro-

pos of a decision rendered by the Tribunal of Bordeaux. Doctor LeBlond thus expresses its sense:—

"There is a second point of view under which we ought to revise the judgment of artificial fecundation. The judges do not seem to grasp the true significance of the operation, since they declare that it is capable of creating real danger, because, forsooth, we correct by natural means the faults and oversights of nature.

"Yet the operation, far from presenting a social danger, as these judges have surmised, on the contrary lends itself to the extension of the family in ac-

cordance with natural, physiological laws, not conflicting in any point with our conscience.

"Without question, the physician who holds out false hopes to the sterile is beyond the pale of our sympathy, but when the operation is performed by a conscientious and honorable man, with all the reserve and precautions which the circumstances demand, we fail to see anything in it offensive to society or morality.

"Artificial fecundation has been advocated and practiced by eminent physicians, who merit our indorsement and respect. We cite especially the names of Courty, Pajot, Sinety, Lutaud,

and Eustache of France, and Sims and Thomas of America.

"Far from following in the footsteps of the tribunal, we should rather independently encourage the method, since it tends to perpetuate the human family with all its joys, which perhaps



they would not otherwise taste. The only proviso is that it should be undertaken only at the express wish of the interested par-

ties, and after due consideration of the case, and especially an assurance that the sperm of the husband is of good quality."

This quotation shows that the question in all its phases and aspects has engrossed the attention of eminent lawyers and physicians, in council, and that it has been indorsed by them. Moreover, they have not opposed the current of progress, as many falsely so-called conservatives do, and finding no serious objections, finding nothing to deny, they have indorsed it as a matter of historical value, to be told to the world.

In the moral point of view, what right have we to question

the methods and operations of the conscientious physician? His reasons are unknown to us, but none the less just.

Is not reproduction a natural function? If it does not take place naturally, who besides the physician has a better right to ascertain the reason and remove it?



The man who marries without intent and desire to become a father is a monster or a fool, while the woman, with her ma-

ternal instinct and eager desire, is rewarded for her suffering and the perils which marriage induces, by the recompense and precious equivalent of a child.

The woman, incited by the maternal instinct, sees children in everything, even in her blindest passion, and in the cradle she is a mother, transforming all living nature, and even sticks and rags, into a doll, which to her represents a child.

History has written that sterility has been the cause of divorce of kings and emperors. In fact, woman is woman only, as she possesses the attributes of her sex, and the chief of these is the power of reproduction.

Fecundation is a natural process or function, the same as digestion, respiration, or circulation. We practice artificial respiration in extreme necessity, as well as transfusion and artificial feeding; why should the physician hesitate to perform artificial fecundation in a like necessity?

But when does the necessity arise? A physician makes an examination, constitutional as well as local, to find the cause of the functional trouble. He tries every means at his disposal to restore these functions to their normal activity, and when these attempts have been followed by a futile result, when he finds fecundation still impos-

sible by natural methods, he is certainly justified in trying his last resource, exceptional though it may seem, namely, artificial fecundation.

There is no immoral act connected with it. It is simply the personal dispensation of a prescription ordered by a man authorized to do so by the same right as others who are prescribing every day without question.

The immoralist can find no objection, other than that the method is a new one, relatively speaking, and that it is so little known that it is not generally indorsed by popular opinion. Hesitation may be permissible, but only to scrupulous casuists,

self-appointed judges, without any novitiate, for it is only a question of opportunity.

In another point of view, the physician is excusable if he forces the hand of nature, since in many cases it is for the safety if not the joy of the woman, pregnancy being a cure for many deviations and lesions.

Again, the maternal desire does not decrease, but always increases, and being unsatisfied, leads slowly to many deplorable consequences, making the woman a victim to a real disease, as the only result of her longing dreams.

The operation is therefore not only a moral one in the

family light, but becomes the duty of the physician, since the general health is preserved by it. It is a question not of conjugal harmony, but of health to the individual.



VII.

History of Artificial Fecundation.

IT would seem from the invectives hurled against me that I (Gerard) was the inventor of artificial impregnation. I wish I could claim the honor, but to tell the truth, I have had nothing to do about it.

This candid avowal ought to gain some indulgence for our popularization of the subject, which consists simply in elab-

orating and explaining the method in its various stages, from the laboratory to practice.

We have, it is true, made modifications in the method and invented instruments for facilitating its perfect accomplishment, at the same time surrounding it with such precautions that we deserve the success we have received, and ought to have letters of naturalization in science.

They commonly say there is nothing new under the sun. We always find, in history and antiquity, traces of recent discoveries, whether it be material and practical, or imaginative.

This applies as well to debauchery and lasciviousness,

conceived alone in the chamber by one who gives free rein to the imagination and creates ideas of the most absurd form, which later, taking on a more material shape, pass successively through all the stages and phases of a dream to reality.

We might narrate the origin of the more recent discoveries of licentiousness, dating back to the age of Augusta and even earlier, but we should digress too widely from our subject, and lose sight of our object.

In the remotest antiquity the people who inhabited the vast country of India, re-discovered but recently in our own day, enjoyed a state of civilization

compared to which our own age is but a shadow, or immaterial phantom. These people were engaged in intelligent labors, and among their sciences numbered horticulture, pisiculture, aud cross fertilization, by the most ingenious and perfect processes. No doubt the brain of that people, which has not sensibly altered today in the higher intelligence, conceived and practiced artificial fecundation, if not in the human species, at least in the production of flowers, creating by their genius and delicate manipulation various kinds and species of flowers.

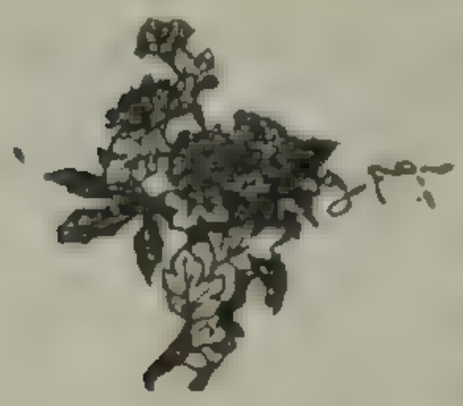
Do we not see in the fertile countries of central Africa the

most luxuriant vegetation, which does not offer even to the intelligent traveler the simplest means of nourishment? Yet as soon as the intelligence of man has taken things in hand, such a transformation results from grafting, budding, and cross-culture, that these very plants immediately become edible and useful.

Our century has no monopoly of intelligence. The ages which have gone before have had their genii and their great men. Who knows but that our own era is only the progressing work of our predecessors? Who knows but that the antedeluvian monsters that we find in fossils

only in our period, were the origin of the seed which our fathers of long ago took for the sowing and raising of our present race of animals? Who knows but that our fathers, by happy selection, have beautified the flowers which we admire so much today, and which would have been so insignificant still, had not man placed his stamp upon them?





The destruction of the library of Alexander, and before that of others, is a lamentable loss

to our generation, for it was a silent witness of the immense progress of our predecessors in those remote ages. No doubt cross-fertilization of flowers had reached a high state of perfection in remote antiquity. As for artificial fecundation of animals,



we have documents which save any necessity of theorizing.

In written documents, which

we have in our possession, of the 13th century, we learn that an inhabitant of Darfour fecundated his mare by obtaining, by subterfuge, the semen from a magnificent horse in a neighboring tribe with which his own tribe was at war. This was transported in a wad of tow, and introduced within the genital organs of the mare, and a conception followed. Whether this document is authentic or apocryphal concerns us but little, since the fact is physiologically possible, and ought to be considered as true as it is possible.

If we could consult the records of the early ages, we should

doubtless find traces of the intervention of man in each era, but we must be content to review the work of the later periods.

Swammerdam in 1680 first tried to cultivate fish by artificial means, and failed: His pupil, Roësel, in 1690, continued the experiments of his master, with no better results. In 1700, however, Jacobi obtained a brilliant success, and actually founded pisiculture.

In 1780, the Abbé Spallanzani successfully practiced artificial impregnation in a dog, and by authentic documents placed the fact beyond dispute. This experiment made a great sensation

in the scientific world of his time.

From domestic animals to the human species was but a step in the ladder. In 1791, Hunter, the celebrated English surgeon, first advised artificial fecundation for the relief of a congenital malformation in one of his patients, and was rewarded with perfect success, although his method was crude, simply consisting in the use of a common syringe to place the semen within the vagina.

We find other physicians following in his footsteps and publishing interesting and valuable reports, but they were at first groping in the dark. Gradually

developing, the method was at length extricated from the darkness of empiricism, and became progressively a rational and systematic one. Soon, in place of sowing the seed in the vagina, the operation was perfected so that the semen was carried into the uterus, where the conditions were more favorable for conception.

Among the pioneers in this field it suffices to mention the names of Hunter, Nicolas of Nancy, and Lesueur, who practiced the vaginal method, and Gignon, d'Angouleme, Marion Sims, Salmon, Gallard, Pajot, Courty, Roubaud, Dehaut, and others who have practiced the

uterine method. As for the authors who have published books or monographs upon the subject, it would take too long to enumerate them. One work, however, especially deserves mention in this connection; viz, the essay of Fabian Gignon, presented and accepted by the Faculty of Paris, Nov. 28, 1871, the title being, "An Essay upon Artificial Fecundation in Woman."



VIII.

Cases in which the Method is Justified.



ED by the presentation of my thesis, Professor Pajot formulated the following indications for artificial fecundation:

1. Men who have no spermatozoids are those who most insistently ask for the relief of sterility by artificial means.

2. When the cause of sterility has been ascertained in the case of the woman, and is amenable

to treatment and possible cure, as it often is, then artificial fecundation is contra-indicated, if the man is normally vigorous and possesses a sufficient quantity of duly-qualified spermatozoids.

3. Out of a hundred sterile households one or two women may be benefited by artificial fecundation. In other cases, except where the husband is the cause, the woman may conceive by natural methods, if treatment is advised and followed according to natural laws.

4. Artificial fecundation is pre-eminently indicated in cases of uterine deviation, where the orifice of the uterus is in apposition with the vaginal walls.

This is true only when the spermatozoid of the man is normal, and often a natural conception may be brought about by proper attention to position during intercourse.

5. When the woman is regular in every way and the man vigorous, an attempt at natural fecundation is indicated for one or two years, before recourse is had to artificial impregnation.

These precepts are doubtless very wise, and express the deductions of many years of observation and practice. Of course, when a patient who has been to professors and official physicians connected with the staff of the hospital comes to us poor,

modest physicians, we ought not to improve on the classic treatment or conservative delay advocated by Pajot.



Still there are many cases where delay has been the treatment for several years without result. However, many cases present themselves to us who think that we, as specialists, are manufacturers of children, and they do not care

to lose more time in useless and often rash attempts; for while there are many prudent gynecologists, there are also many rash physicians who attempt dangerous methods of cure without forethought or skill, and in the cases in question may render that woman truly sterile who before was merely relatively or temporarily so.

Under these conditions we must temporize no longer, and least of all do we need to prescribe new regime or treatment, or new positions, or any of the methods advised by those more authorized than ourselves so to do.

To lose time, for instance,

when the woman is approaching or has passed the age of thirty, is imprudent. Reason demands that we operate at once to ensure to our clients all the elements of success possible, as obstacles increase with age, and often with the length and number of prior treatments.

After an extended practical experience with artificial impregnation in a varied series of cases, we believe that the following conclusions are warranted:

1. Every well-regulated female who is exempt from acute or chronic inflammation of the whole or a part of the genital apparatus and who has been married at least two years,

and has therefore a legitimate right to seek consolation for rights denied her, is justified, if the husband has spermatozoids of proper quality and quantity, in availing herself of the advantages of artificial fecundation, and the physician is justified in meeting her desire.

2. Every woman affected with simple catarrh, which has been treated constitutionally without result, may legitimately demand the operation, since, by its means, the semen may be placed out of jeopardy by being placed above the catarrhal region.

3. Every woman affected with a deviation of the uterus, with-

out trace of inflammation, whose husband has received the customary advice concerning position and has carried this advice into practice without result, has a right to demand artificial fecundation.

4. Every man affected with frigidity and treated therefor without success, whose wife is sound constitutionally, may demand the operation, if his sperm is of good quality.

5. Every man whose penis is rudimentary or disproportionate, and who yet has semen of good quality, may legitimately demand the operation.

6. Every couple where obesity of the one or the other, or the

two conjointly, is a physical bar to proper intercourse, may apply for artificial impregnation, this being the only way in which the histological elements can be brought into apposition.

These indications, while sufficiently precise, are still sufficiently elastic to allow of compromise between physician and patient. The circumstances are, as a rule, urgent, for we must consider that the step costs a good deal of nerve and courage on the part of the couple who come to the specialist in this method, and that it is only decided upon after all other methods of treatment have been tried and failed, and that to

delay longer is to meet ever-increasing difficulties, as the woman is aging.

Is not two years, that is to say, twenty-six menstrual months, sufficient time to wait, trying expedients and hoping for the best? After that period has elapsed, we are certainly justified in an artificial method. They say that wives become mothers after two years of marriage; but this is the exception that proves the rule.

The longer one waits, the less the chances of being one of these fortunate exceptions. It is, then, prudent, at least, not to wait too long, even if one is pleased with the selfish idea that

it is a good thing to be free from incumbrances; for the taste for children passes with the possibility of bearing them, and when one is all alone in the world it is often too late to have children under good conditions.

These indications are the only reasonable ones justifying the operation, for we know of no deviation, atresia, displacement, or catarrh, which is a true cause of absolute sterility where this method is attempted. They are simply relative elements of error which must be scientifically corrected.

We see spermatozoids confined between two glass plates leaping and galloping around,

as it were, as if they were absolutely free agents. We believe it poor policy to deny them the privilege, granted them by instinct, to pass by all deviations, curvatures, and atresia of the neck, whatever their nature, and believe it our duty to aid them and prevent all the trial and fatigue that we can.

Artificial fecundation has this advantage, not the only one, it is true, but still a great one: it shortens the route by a quarter or a third, since the passage of the neck is often the most difficult road traversed by them. For this reason, if no other, we should accede to the demand for the operation, especially

when no disease or lesion is present.



IX.

Advantages of the Method.



IT is necessary that the semen should traverse the whole length of the neck, if it is to become fertile. Strange as it may seem, man, alone of all male animals, has a penis short in length, comparatively speaking, and unpointed, thus differ-

ing from that of other animals. It follows that animals are not put off with vaginal coitus, but reach the uterus directly, or at least the lower portion of the neck. Man has an insurmountable obstacle in the fact that he does not reach the uterus, and if the meatus is not directly in line with the neck and its opening, he throws nothing into the uterus. The spermatic jet is broken, and becomes a mere sprinkler, so that the spermatozoids must continue their journey of themselves, if they would gain this haven, pass the entrance against the many obstacles, traverse the course of seventeen to eighteen centimetres against the

opposition of the vibratory cilia, and enter the Fallopian tube, where alone they meet the ovule and fecundate it.

This mad course is beyond the power and strength of the greater part of the crowd of spermatozoids which enter the race, and it is just that we should shorten their course, if we can, and aid them in running to their goal.

Animals, on the contrary, have the balance of chance in their favor. The penis is longer than the vaginal canal, so that its point easily engages in the opening of the uterine neck, and once thus engaged, the semen is projected into it with great

force. The animal thus does with a natural syringe what we accomplish artificially by a manufactured syringe.

Thus no part of the semen is lost, but the entire company of spermatozoids take an equal start for the goal, the difficulties commencing at the Fallopian tubes; for, as the exit of the penis engages with the opening of the uterus, it follows that the semen enters without hindrance, and fills the uterine cavity.

Man, less happy, never reaches the uterus, and by his habits and position often leads to a cul de sac, where the semen is deposited like water in a bay: it enters the antechamber of life

only. Here its chances of entering the narrow isthmus of the neck are slight, especially as the vertical position of the woman tends to cause the semen to fall rather than to rise, and this tendency is exaggerated by every movement.

All these circumstances show how much inferior to animals we are in the reproductive question, there being in their case a happy and intentional disposition to conceive. But let us console ourselves with the thought that, if the human species were as prolific, the earth would not hold us.

For this very reason we think it proper to correct in a measure

this human defect, especially when the husband and wife earnestly desire children, by momentarily and artificially placing the semen in the same position as it naturally acquires by adaptation in animals, where it can be most usefully and economically applied.

Artificial fecundation is, then, logically the first resort when natural means will not suffice to bring about the desired end. Its use repairs in a measure errors of conformation and adaptation, and goes about the work of restoring lost hope in the most intelligent and useful manner.

X.

Contra-Indications.



ARE, most essential in all things that are to be brought to a perfect end, is especially necessary in artificial fecundation, if we do not wish to fail in the attempt and bring discredit on the method. It should be practiced only when all elements point to success and we have the utmost assurance that nothing will go wrong.

Certain functional and absolute contra-indications point to

failure and deter us from the attempt; namely,—

1. Every woman affected with an acute or chronic inflammation of the uterus or its annexes is functionally sterile, and the method is contra-indicated until a cure has been effected by rational treatment.

2. Every woman menstruating abnormally is functionally sterile until she has been made regular.

3. Every woman who suffers at the time of the periods, or before, or after, however regular she may be, is functionally sterile, and must be cured of this dysmenorrhœa before the method can be successful. In all

these cases, after treatment has been beneficial, the natural relations between wife and husband should be tried, to see if natural fecundation may occur, and the artificial method should be attempted only as a last resource.

4. Every man whose amount or quality of spermatozoids departs in any way or measure from the normal should undergo treatment until the same is decidedly ameliorated. If treatment gives no result, the operation is contra-indicated.

5. If the operation cannot be performed under the best of physiological conditions, it should not be undertaken at all.

If these indications are considered, success will probably follow. My own experience, extending over a long period of time and including a large number of cases, proves to me, at least, that to ignore them is to invite checkmates in the operation, and to bring the physician and profession into disrepute. It is, therefore, well to lay down certain inflexible laws for and against, and to depart from these indications under no excuse or pretext.

Absolute contra-indications are as follows: —

1. Abstinence from all natural as well as artificial fecundation in malformations of the pelvis,

preventing normal accouchement.

2. In uterine retroflexion, with cicatricial adhesions rendering the uterus immovable, there is an absolute contra-indication.

3. In incurable organic lesions of the genital apparatus it is contra-indicated.

4. In all serious diatheses, as cancer, syphilis, tuberculosis alone or conjointly, in one or both partners to the act, there exists an absolute bar to the propagation of the species.

As for the rest, the physician must carefully decide in the individual case whether he is justified in forcing nature to do

that which she has refused to do normally. He must in no case intervene if there is any possible danger threatening the mother or child during gestation. It is better to abstain altogether than to be checkmated or make a mistake.

XI.

Instruments Required.



VERY workman in a special trade requires special tools perfectly adapted to his purposes and ends. Just so in artificial fecundation, while the instruments are simple, still they must be suitable for the purpose They comprise, first:—

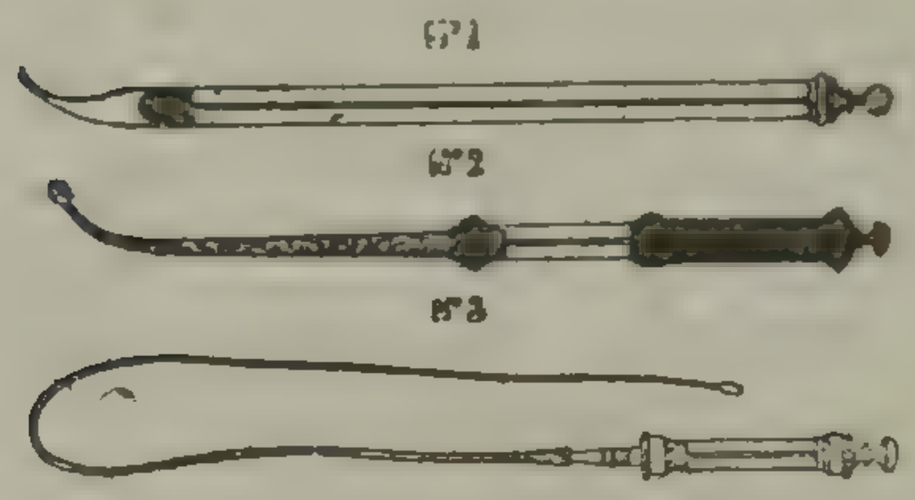
Injectors. Every man has an especial liking for instruments of his own design and chris-

tened with his name. I candidly acknowledge that I am no exception to this rule. But that is of slight importance to the end. The instrument, whatever it is, should have certain qualities; namely, it should take the semen at a given point, wherever that may be, and carry it to a desirable point for ensuring conception, without wounding the patient or changing the character of the semen, either in quantity or quality.

Whether it be the simple syringe of glass described by John Hunter in the beginning, or the golden or silver cannulas of more recent operators, matters but little. But it is essen-

tial that it be suitable for the purpose, unbreakable, of proper size, easily cleaned, and allowing the contents to be seen.

Of all the instruments which we have had in our hands, and they are many, we found but three injectors useful in all these indications. The designs are given for a clearer explanation.



Number 1 is made of tempered glass five millimetres in diameter and unbreakable, hold-

ing its shape and allowing the contents to be seen.

Number 2 is a syringe of hard rubber with a semi-flexible cannula having perforations at the side of the end, thus allowing the jet to be thrown in any direction. It is, moreover, easily introduced, and never causes injury, having the disadvantage of being non-transparent and of engaging air within it.

Number 3 is a slender sound of rubber which can be insinuated within the uterus as far as the tubes, passing through the narrowest neck and adapting itself to all deviations however sinuous their course, but on the other hand taking up the semen

only when it is disconnected, and therefore mingled with air which is apt to be injected with the semen. Yet in spite of its imperfections this sound is most useful in the more difficult cases where other instruments fail. It is best used in connection with a hypodermic syringe fitted to the tube, or rather, the tube fitted to the syringe.

The couveuse, made for us by Favre, contains about three litres of water, which is maintained at an even temperature of 40 degrees centigrade (104 degrees Fahr.) by means of two night lamps. The apparatus is so proportioned that the caloric developed is equal to and coun-

terbalances the loss of heat by radiation and invection, a uniform temperature being thus always maintained.

In the centre of the couveuse is a rectangular case which holds the following instruments: a sensitive thermometer, a Fergusson's speculum, the syringe, and a glass capsule to receive the semen in special cases, to prevent any loss of heat and to keep it from the light, and finally a tampon of cotton or wool to plug the uterus after the operation, and thus retain the semen in situ.

Portable stirrups are quite essential for the advantageous performance of the operation at

the bedside. The gynecological chair is better for the physician, as he then has all the conveniences, but it is not so agreeable for the husband.

To obviate the difficulties which an ordinary bed presents, M. Dupont has made for me a slipper stirrup which folds into small space and is portable. This can be used on any ordinary double bedstead, and renders the operation easy for the wife and husband, while it gives the physician all the advantages he requires. The woman can rest in the required position for two or three hours without fatigue, supported by this apparatus, or, if desired, after the

operation has been performed the patient can be turned a quarter round in the bed, and thus recline in the usual position.

This is the sum of the apparatus required to perform this delicate operation, the following points being borne in mind as important factors of success: —

1. The semen must be kept at a given temperature — between 37 and 40 degrees centigrade. If it falls below or goes above this degree, it will be rendered useless.

2. Every speculum or syringe passed into the vagina without being warmed to 40 degrees, lowers the temperature

of the semen as much as 5 degrees in summer and 10 degrees in winter, according to the temperature of the appartment.

3. To place the instruments in water just before using them is to court failure, as water is destructive to spermatozoids. However well the instruments are dried, there still remains enough moisture within or upon them to alter the semen, especially as it is difficult to judge of the exact amount of heat at the moment of operation. Thus we may cook the spermatozoids en masse, or we may pitilessly freeze them, if we rely upon our tactile sense as a measure of heat, in default of a thermome-

ter, which nine times out of ten will break at the psychological moment, especially if the bath is not regulated automatically.

4. Always guard against introducing the minutest globule of air within the uterus, but do not hesitate to inject a cubic centimetre of semen.

To disregard any of these factors is to invite failure.



XII.

Especial Notice.



E'r the operation once be decided upon, and it is indispensable that the parties should prepare for it as for any serious operation, and attend strictly to it without preoccupation or distraction.

The most propitious moment, as proven by experience and for physiological reasons, is the menstrual period. The menstrual eve is accompanied, in most women, with an increased affection, and an instinctive desire for the approach of man. Even the most frigid have a little desire during this period, and feel relieved at the finish of the catamenial crisis. In the operation, then, we should seek this psychological moment.

Some women can conceive only during menstruation, being then in true heat, and instinctively seeking the embrace of man. We must remember that menstrual blood does not injure

the vitality of the spermatozoid, and that, contrary to the popular opinion, this is the most favorable time for conception. The children conceived at this time will not necessarily be unhealthy or have red hair.

The medium in which the conjunction of elements takes place has no slight influence upon results. Better seize the moment of dehiscence from the ovary than let the opportunity escape, for the protective envelope of the ovule will not withstand the laws of maceration, if it is not fertilized, and when it is once fecundated nothing will alter it.

It is therefore essential to

learn the precise instant when dehiscence occurs, to educate the inexperienced husband by advice relating to this matter. Then, this opportune time being settled, an appointment should be made and zealously and punctually kept to the dot by all parties interested.

The place of rendezvous is of the utmost importance, since the environment has no little part in the moral emotions and physical acts. Strange places may so work upon the husband and wife that the operation may be delayed, and often lead to a loss of the opportune menstrual period, thus necessitating a weary wait of another lunar month.

The physician ought therefore to carefully consider the moral considerations as well as the social ones which militate in favor of or against a given solution or choice.

Should the place selected be the house of parties needing attention, or should it be the office of the physician? It would be better in all points if it were the house of the parties, and never elsewhere, but as there are still prejudices to overcome before artificial fecundation will be acknowledged as legitimate to all, we must submit to the interests and feelings of our clients, who as a rule desire the strictest incognito of

themselves and their surroundings, and rely upon the professional secrecy of the physician, which we know is absolute, and more silent even than that of the father confessor.

Whatever and wherever the place chosen, the husband should see to it that there can be no possible distraction or surprise, but that it is secluded, free from interruption by unexpected visitors, or accident, and free from noise, as it is only under these circumstances that success can be complete.



XIII.

Operative Procedures.



F necessity, in treating such a difficult subject in a plain manner we cannot keep closely within the bounds of scientific language. We are, however, conscientiously restricted to a moral treatment of the subject, and thus disappoint many unhealthy, prurient, and curious

readers of the enjoyment which this kind of writing affords.

We are necessarily obliged to enter into details of the most intimate character, but science has modesty and shame, and the profession has dignity, both prompting us to say no more than is required to make the subject clear, leaving the reader to divine what we cannot more clearly state on account of the moral fitness of things.

Let us consider, then, since we are in touch with the questions, that one of two cases may occur; viz., where the husband is potent, and where he is impotent.

In the former the relations of

man and wife are normal, and the semen is normally deposited in the vagina. In this case the physician takes his speculum from the couveuse at the head of the bed and opens the vagina. He then takes the syringe from the couveuse, fills it with the semen which he finds in the vagina, and finding the opening of the os, he introduces the cannula of the syringe, passing it into the uterus as far as possible without injury to the patient. He then injects at least a cubic centimetre of semen, taking due care that it remains therein. Then, withdrawing the instrument, he watches to see if the semen is retained as a mass, af-

ter which he closes the os with the wad of wool or cotton which he has placed in the couveuse for that purpose, and insists upon a reclining position for at least two hours.

In the second case the husband is impotent only from the fact that he cannot perfectly fulfill his marital duties, and artificial fecundation is necessary to aid him. The semen is normal, in a histological point of view, and it is capable of fecundation, if it can get there, so to speak. To effect conception, however, it must not lose in temperature, and must not be exposed to the air.

The proceedings to be fol-

lowed in this case are, for the husband to remain in a warm chamber for a sufficient time to ensure natural warmth, so that all the secretions may be normal, and then, when the sperm is ejaculated, to catch it in the container chosen for the purpose, and immediately place it in the couveuse. The manual operation is the same as in the preceding case, the stages being the more rapid and successful, as the speculum has been previously inserted in place and held there by the wife.

Other authors and operators recommend a third method of collecting the semen. They do not think it best to collect the

semen in the vagina, since it is there mixed with an acid fluid, desquamated epithelium, and other foreign bodies detrimental to it and irritating to the uterine mucous tissue. To counteract this, some recommend the ejaculation of the semen into the fold of the groin, previously washed with alcohol and carefully dried.

This method is tempting, and evidently rational at first sight, and yet experience fails to show good results, if any. The natural method is the only one of value.

The only rational method of counteracting the effects of a marked vaginal acidity is to in-

sist upon a complete cleansing of the canal by an injection two hours before the operation. A quarter of an hour before the operation this is supplemented by a final swabbing out with absorbent cotton absolutely dry, which ensures the temporary removal of all offensive elements detrimental to the semen.

To receive the semen in the fold of the groin is without guarantee of any advantage, is not conducive to the preservation of the semen, is repugnant to taste, and is, moreover, without necessity.



XIV.

Natural Impregnation without Recourse.



ATE interest is better than none, and the interest that the journals have shown in this question proves that the matter is of importance, as well to the state as to the family ; for if the child makes the home happy, so does the

increase of a people ensure its power and grandeur, since, other things being equal, the victory is to numbers.

But this interest has not been unanimously favorable. Some, instead of praise, have unsparingly uttered reproach and censure, claiming that it militates against public morals, and even bitterly and unjustly propagating the idea that we make children without the intervention of the husband. Further, they say that artificial fecundation is a dangerous operation, repugnant to our morals in idea and method, and inappropriate to people of gentle manners. They even go so far as to raise a doubt as to

the moral and physical character of children thus conceived.

This work, however, answers these questions, and briefly shows that the method is simply an intervention of science as the handmaid of nature, and that it changes none of the relations.

The sole objection that can be made to the method is, that it introduces the physician immediately after the completion of the conjugal duties, when the husband is still excited by the venereal spasm and emotion.

Realizing that this intervention of a third party may be and is a real danger, and that it prevents some impressionable people, who cannot consider the

physician as an indifferent factor or a simple instrument to the end, from taking advantage of the method, I have tried to invent some means which should not shock the modesty of either party to the act.

This proceeding must of necessity be simple in operation, be applicable in the majority of cases where the artificial method is indicated, and be relatively so effective that we shall not be prejudiced against its use in favor of direct intervention.

To fulfil this end we have had a series of small funnels made in different forms, adapted in each case to the vagina and uterus so they shall exactly fit

the parts and leave no vacant space or cul de sac, thus avoiding any false routes. The stem of the funnel is of such length that it passes through the entire length of the neck of the uterus, extending into the uterine cavity two or three millimetres. The stem, moreover, is so formed that it remains fixed in the cavity, whatever the movements or efforts made by the woman tending to displace it.

These funnel-shaped pessaries may be left in situ for twenty-four hours without any inconvenience. On the contrary, they have the advantage of draining off the mucus of the uterus by the natural action of gravity,

and thus preparing it to receive the seminal fluid in all of its perfection, absorption being the more sure as the position is more inclined.



This apparatus being placed in position at the proper time by the physician, the couple may return home without fear of disarranging the apparatus, and, once there, consummate the natural act by natural means, with a positive belief that it will be effectual in result without

further intervention of the physician.

The husband can himself withdraw the apparatus two or three hours after intercourse, without fear of compromising the final act of fecundation.

We repeat again that we wish to make no monopoly of the method. We have no professional secret; all that we have to say is said that the physician may do as we have done in practice. Sterility being the social plague which decimates the race, it becomes necessary that every physician should be able to counteract it, in the poor, as in the rich. Every physician should also know and

practice the elementary operations at least of gynecology, without having recourse to specialists, who, while they may have more experience in a short time, are none the more successful in the generality of cases.

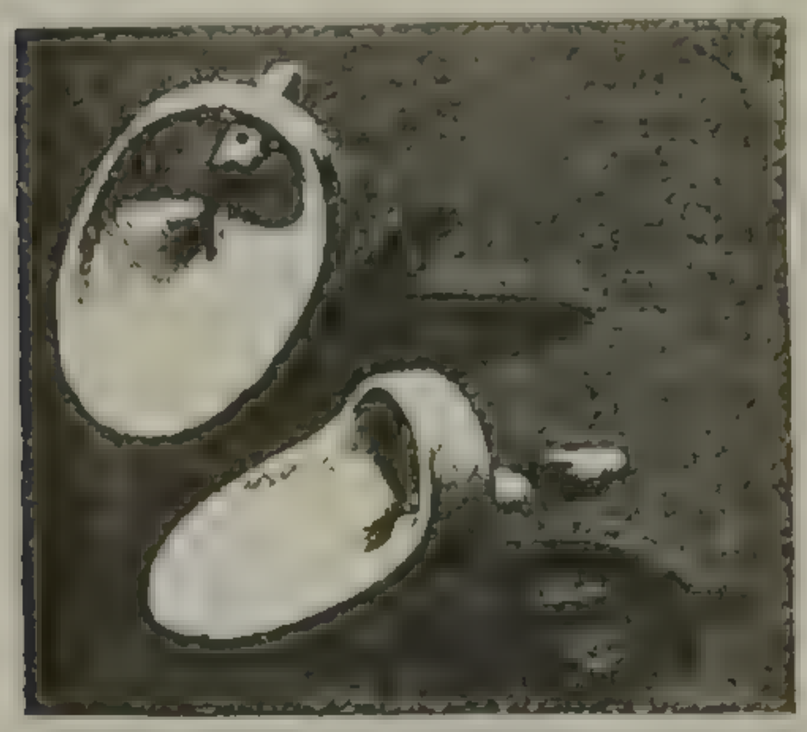
These funnels may be made of ivory, celluloid, composition, rubber or shell. They are light, adaptable, and inalterable, quickly attain the temperature of the surrounding tissue, and do not affect the semen in any way. They cause no pain in the performance of the genital duties, and can be worn a long time without any inconvenience. We have even used them successfully in draining off an

uterine catarrh of long standing, where the uterus was so strictured that the viscous mucus entirely filled the cavity. This was left in situ three months or more, without inconvenience or injury. It is, in a word, a natural drainage tube, allowing free entrance to and exit from the uterus.

This instrument is therefore useful in other fields than that of artificial fecundation. Many lesions of the uterus may be treated by this permanent drainage tube, and the neck may become accustomed to its presence, and so tolerant in other ways.

We reproduce in this place

drawings of the instrument, taking as a typical form that most in use, the one to correct anteversion.



In the majority of cases where artificial fecundation is indicated this method may be advantageously used, with this in its favor over the use of the syringe: it respects the natural modesty of the woman, and regards the

self-respect of the man, who is more satisfied in helping himself without immediate intervention of a third party. Besides, there is no reason to suspect fraud in the origin of the semen, a thought which might arise in the minds of those interested, however innocent the physician might be of such fraud or intention. Still, some such trickery might be practiced, and can be effectually guarded against by the use of this apparatus, or by employing a female physician, who could not by any chance supply the seed for the sowing, be it good or bad.

However, artificial fecundation after the original methods

will still be necessary, especially in frigidity of the man. The word artifice is not well applied to the two forms, and yet the root implies the intervention of art. The funnel fixed in the vagina and the uterus is certainly an artifice, and not a natural proceeding. We might call this method "fecundation according to the spirit of the law," and the primary operation, "the method after the letter," thus satisfying the public morals.

Sterile couples can choose the one or the other, with assurance that each will give an equally good result and lead to healthy children.

XV.

Prospects of the Infant.



F all the questions asked, the most frequent is, "Is the child resulting from artificial fecundation the same as one resulting from natural conception? Does the former possess the same physical vigor and moral character as the latter?" The question shows a

lack of knowledge of the means and ends, for the elements are the same in either case, and are not changed or modified.

In reality, voluptuous pleasure to a greater or less degree, the carnal attraction of the one sex for the other, is one of the most powerful and surest factors in creation. Without this attraction, nature would be a deaf mute. Pleasure being proven in the premises of love, is, so to speak, only an encouragement to pursue the subject more deeply and intimately. It is only the preamble, the bait, the interest paid in advance. The final result is an infant.

Whether pleasure presides

over our relations or not, there is an act of pre-fecundation before it, fecundation proper taking place two hours later in the play, and with different scenic surroundings. Cohabitation is simply an introduction at the door; the intimate acquaintance of the spermatozoid and ovule occurs two hours later, in an inner room.

It is clear that, however the conception occurs, it is a long time after the inception of the semen by the uterus, and in either case, artificial or natural, the result will be the same. This assurance is necessary, not for the physician but for the patient, who may think that the

artificial method will produce a monster. We have delivered many children conceived by artifice, and never found a single one abnormal in any form or part, but always of normal weight and constitution.

As to moral aptitudes, there is no more difference than in health. In proof of this we point to many children fourteen or fifteen years old conceived in the artificial way who differ not a whit from those conceived in the natural way; and why should they?

Relating to this subject, the following portions of a letter written by a man highly intellectual, but deucedly paradox-

ical, may be of some interest to the reader:

"I have reduced this question scientifically to the dilemma, What is it, and what is it not? As for the privilege of serving whomsoever may demand it, that relates to and concerns the physician and husband alone; but you will never obtain any verdict from the catholic and sentimental people at large other than one of ridicule and reprobation. As for myself, I have read your work with pleasure, and I candidly give you my ideas thereon:

"The simplest manner to remedy sterility is to adopt a child, thus relieving the sym-

pathies at least of the woman. True, the greater part prefer dogs and cats, but although these may be less dear and less absorbing, still it is necessary that there should be something of the kind to occupy the heart and mind of the poor creature who has despaired of the great fortune of giving breath to a being who has ninety-nine chances out of a hundred of being an idiot anyway. For you know, dear doctor, that unhealthy and idiotic children are not wanting, and that their parents would have done better to remain sterile."

To this letter I replied: "There are many women in

such a state that they desire, demand, and need a child of their own, without taking one from the hospital. The chance of ninety-nine in a hundred against this child being sound bodily and mentally does not deter or frighten them from their purpose, for they have the hopeful pride of making a genius by their love. I believe, moreover, that the infirm of body and mind are more beloved by the mother than the well and strong.

"This is the very element of woman, to be ruled by some one, and to devote her body and soul to that one. It is her nature and instinct, and a dog does not satisfy it, your state-

ment to the contrary notwithstanding.

"As to the aspect of the question, I should think that a careful reading of my thesis would convince you that it has tangible and perfect results which you can deny or refute only as you allow prejudice to decide instead of sound reason. Prejudice, by the way, is like a clam: it shuts up and draws itself within itself at the slightest sound of a footstep on the sands of progress, and this prejudice is synonymous with conservatism as we see it expressed in action, or rather inaction."

But to resume our subject, the artificial method is not super-

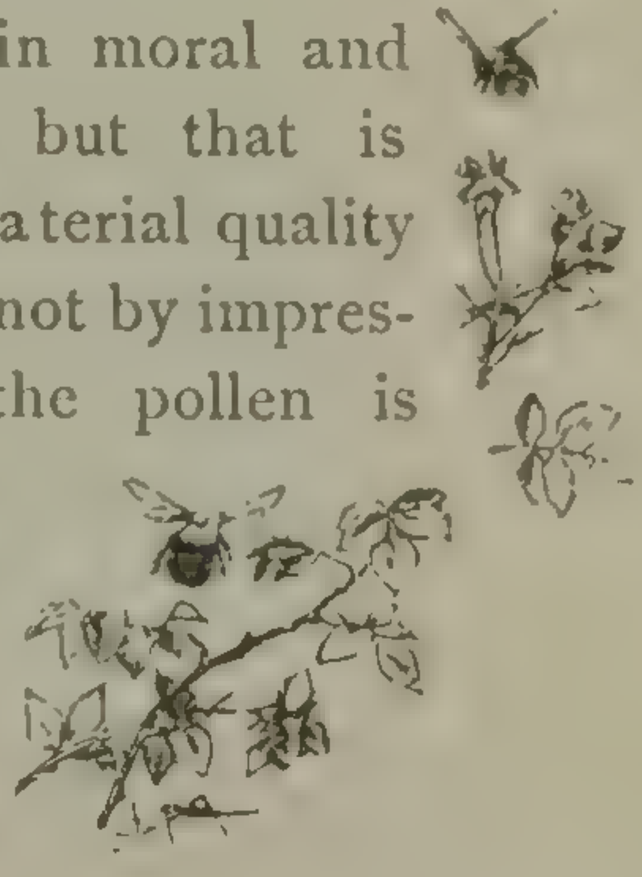
natural, and it is not necessary to shut up our patients for three months to prove that children may be conceived without the preliminaries of love.

The genital pollen is like that of plants, differing essentially, it is true, but having analogous characteristics to any vegetable or flower pollen.

It remains only to speak of the moral product. You evidently think that the measure of intellectuality is relative to the measure of pleasure experienced in copulation. There is an old legend that says the children of love are beautiful, intelligent, and brave. The truth is, the intellectual faculties are the re-

sult of functional integrity and perfect equilibrium of the organs, nothing else. A morally and physically healthy ovule fertilized by a spermatozoid of equally good quality, always produces a perfect result, whatever the impression or sensation experienced by the two partners to the act.

I fully believe in moral and physical heredity, but that is determined by a material quality of the semen, and not by impression. Whether the pollen is brought to the ovule of the rose by the feet of a flitting bee or by a perfume-laden



breeze, the resulting seed and the rose that grows therefrom are no less beautiful or sweet.

If you are a grand thinker, or a valiant captain, or a great genius, do not flatter yourself that you were conceived in the ravishing pleasure of a seventh heaven or to the sound of a celestial lyre.

That you cannot write a perfect work in a fit of anger is quite clear to me, for I can conceive that your brain may be disturbed, and thus lose its customary balance; but that it may modify the secretions, I do not for a moment admit. All the same, if the moral sensations of the couple have an important

influence upon the product conceived, which I grant, for the sake of argument, but know to be erroneous in fact, they have no effect upon artificial fecundation, for it in no way interferes with or denies this satisfaction to the



partners in love, but allows them to enjoy all the voluptuousness of the psychological moment, and only concerns itself with the semen, to be obtained in whatever way is possible and best.

We would repeat, over and over again, that voluptuousness is only the reward of love. But one can have children without offering this premium, and all are not so selfish as to demand it.

XVI.

Statistics.



YING figures are often brought forward to affirm and sustain lying facts. A book-keeper can manipulate his accounts in such a way that every figure seems correct, and so an enthusiast can manipulate statistics to apparently prove his theory. The figures may be correct, but the comparison faulty.

Thus a physician may publish all cases in favor of his method

and suppress all unfavorable facts, and so make up a wonderful average which is not true or correct. This decreases the amount of failure, and places his operation ahead of his more honest confrere.

This was evidently in the minds of the faculty when they refused our reports, as fantastic or imaginary, and yet this wonderful delusion has brought us many more successful cases, and swelled our average to a larger number.

For the benefit of those who desire to engage in this branch of gynecology we reproduce our reports as percentages.

If our clients are from 17 to

25 years of age, virgins as far as treatment is concerned, and genitally healthy, we obtain an average of ninety per cent. of successful cases. This presupposes that the semen is normal in all respects, and that artificial fecundation has the incontestable advantage that it is more far-reaching and surmounts all obstacles, being practiced under more favorable conditions than accompany normal intercourse.

We state officially that children are borne, on the average, only after 15 months of married life. If we subtract from this 9 months, we have a remainder of 6. This leaves 6 months as the average in which intercourse

is practiced without result, and this class gives us the best factors for the artificial method, since at six months of partnership they are still young and fertile. If we reckon two attempts a week, we have 52 final attempts without result. But in artificial fecundation we succeed as a rule at the first attempt. What could be said in its favor if it failed, as do natural attempts, 52 times?

It is incontrovertible that the progress of nature depends upon the progress of art, and our statistics prove this fact. In all cases where we are consulted we find that nature has lost her rights, the result being natural

impotence, unless nature is aided by art.

We have received, in consultation, parties who have been sterile ten years, at least. The women have, as a rule, passed the thirtieth birthday, and the procreative aptitude is blunted, the ground still being virgin soil, but the component elements wanting. The sun has gone into a cloud, wearied by the attempts at treatment of cleansing, scraping, and harrowing for a crop. It is evident, then, that in those cases the result is obtained only under the worst conditions, and that it is wrested from nature, as it were. Nature has gone to sleep, and if

we awaken her, it is an incontrovertible fact in our favor.

The results of our practice show that in all cases deemed hopeless on account of poor material, such as poor semen (organic uterine troubles alone excepted), we can expect success in two-thirds of the cases before thirty years of age, one-half from thirty to thirty-five, and one-fourth from thirty-five to forty.

These results certainly encourage us in our attempt to popularize artificial fecundation.

But to those who doubt our figures let us say that they are comparative. Success depends entirely on the field cultivated. The farmers of the West raise

more corn and wheat to the acre than we do on ten: it is a question of soil. Just so physiological poverty plays an important part in procreation. Operate upon patricians of high degree, and the result will be astonishingly meagre. Operate at Belleville or Montmartre, in the heart of the hungry populace, and the results will be as far more astonishing conversely. This is the secret of diverse results.

XVII.

Prospects of the Future.



ET the present be what it may, the future has brighter prospects, if we read the times aright. The process of artificial fecundation will not always be napping in the green room or at the side scenes of scientific medicine, but will make its debut some day at the stage centre.

To establish its claims to general adoption it should be offi-

cially recognized by some institution. A clinic should then be inaugurated and a detailed record kept of the respective ages of the partners, the date of marriage, the obstacles presenting, the number of impregnations, the time relative to the menstrual period, the method adopted in each case, and the final result, whether successful or not. From this experience younger physicians could learn much of advantage, and, strengthened by the authority of a hospital or school, they would be of great service to their clients.

There are eminent professors whose word is authority the

world over. These would do no mean service, could they be induced to try and endorse this operation, for then it would have official endorsement subject to no doubt, while the statistics and results would be beyond question. In private and general practice, however, it is difficult to convey conviction.

The few words of wisdom (pardon the egotism) which we have spoken and written are uttered in a disinterested manner, for we have never tried to monopolize the method of artificial fecundation or even tried to make a specialty of it. Living in the country, several leagues from Paris, we have oc-

cupied ourselves with the general practice of medicine, modestly and conscientiously attempting to relieve the suffering of the rich and poor alike.

Our success led us to take an office in Paris, to fill the numerous engagements there demanded by families requiring our special intervention. Thus we became a specialist without knowing it or seeking to become one, accepting the rich and poor alike, for the rich have no monopoly in the desire and love of infants. The workman shut up in a little-lodging house is as happy in his child, if not more so, than the bonded capitalist who owns his lodgings.

He wheedles and nurses the child, if not so much in happiness, certainly with more care and love than the rich man, surrounded and surfeited with splendor and idleness. The workingman, without family, is too often like a weak column which threatens to fall, and the child is the prop that we should strive to raise for him, to support him in time of need and keep our industries alive. The child surely moralizes and aggrandizes him, and his gratitude is a certain reward for our work.

We conclude this chapter with another appeal for a public clinic where the modest and needy artisan may find public

service, with the advantages which the gratuity brings to him. The tribute of a father is certainly sufficient reward in such cases for the benefit conferred.



Conclusions.

XVIII.



INASMUCH as the operation is so simple and so successful, it is worthy of trial at least and acceptance in general practice as the ultimate treatment of sterility. It is proposed by the physician, but is

demanded in the interest of the unfortunate.

It should be repeated as often as is necessary to arrive at the result, namely, impregnation of the ovule.

The operation is the better as it is simple, rapid, and approaches nearest to the natural processes, fostering the dignity and self-respect of the husband.

Children resulting from the operation differ in no respect from those engendered by the natural method, either in vigor, health, or intelligence.

In a word, and the last word, it does not transgress social or moral laws.

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